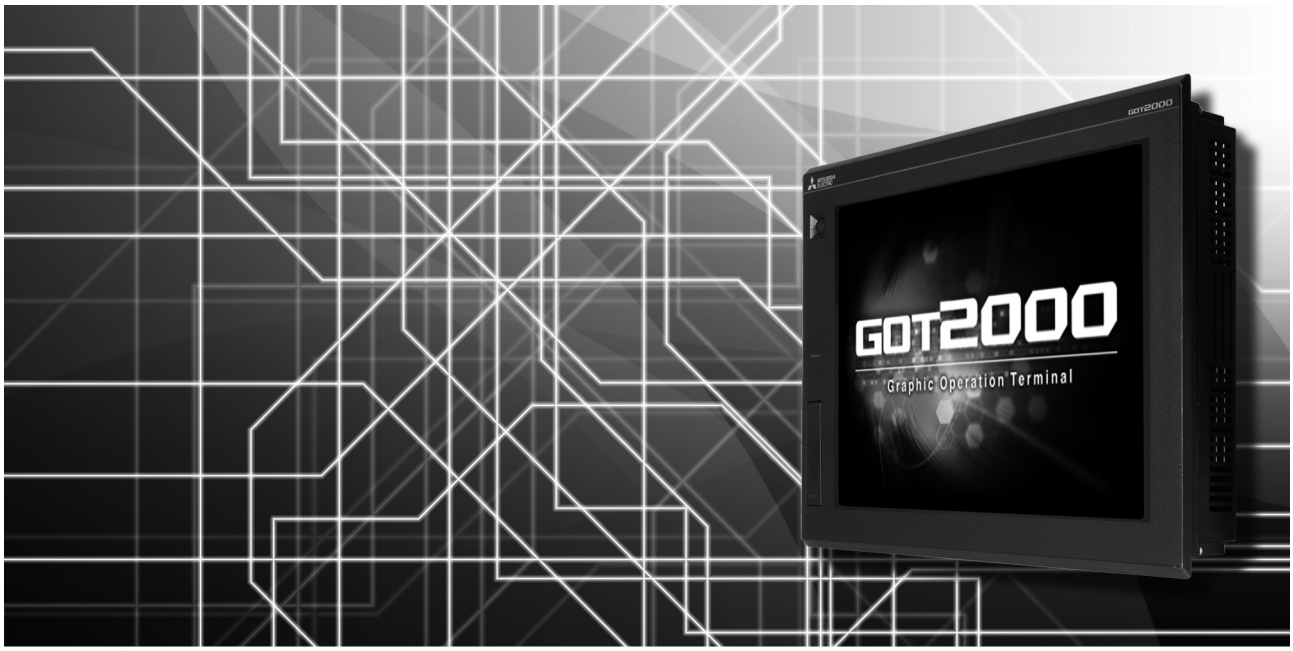
MITSUBISHI ELECTRIC

GRAPHIC OPERATION TERMINAL

# GOT2000 Series

# Connection Manual (Non-Mitsubishi Products 2)

For GT Works3 Version1




■HITACHI IES PLC
■HITACHI PLC
■FUJI PLC
■FUJI TEMPERATURE CONTROLLER
■YASKAWA PLC
■YOKOGAWA PLC
■YOKOGAWA TEMPERATURE CONTROLLER
■RKC TEMPERATURE CONTROLLER
■ALLEN-BRADLEY PLC
■GE PLC
■LS INDUSTRIAL SYSTEMS PLC
■SICK SAFETY CONTROLLER
■SIEMENS PLC

# ● SAFETY PRECAUTIONS ●

(Always read these precautions before using this equipment.)

Before using this product, please read this manual and the relevant manuals introduced in this manual carefully and pay full attention to safety to handle the product correctly.
The precautions given in this manual are concerned with this product.
In this manual, the safety precautions are ranked as "WARNING" and "CAUTION".

| | |
|---|---|
| ⚠ **WARNING** | Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury. |
| ⚠ **CAUTION** | Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight personal injury or physical damage. |

Note that the ⚠caution level may lead to a serious accident according to the circumstances. Always follow the instructions of both levels because they are important to personal safety.

Please save this manual to make it accessible when required and always forward it to the end user.

## [DESIGN PRECAUTIONS]

### ⚠ WARNING

- Some failures of the GOT, communication unit or cable may keep the outputs on or off.
  Some failures of a touch panel may cause malfunction of the input objects such as a touch switch.
  An external monitoring circuit should be provided to check for output signals which may lead to a serious accident.Not doing so can cause an accident due to false output or malfunction.
- Do not use the GOT as the warning device that may cause a serious accident.
  An independent and redundant hardware or mechanical interlock is required to configure the device that displays and outputs serious warning.
  Failure to observe this instruction may result in an accident due to incorrect output or malfunction.
- When the GOT backlight has a failure, the GOT status will be as follows.Failure to observe this instruction may result in an accident due to incorrect output or malfunction.
  - GT27,GT25,GT23
    When the GOT backlight has a failure, the POWER LED blinks (orange/blue) and the display section dims. In such a case, the input by the touch switch(s) is disabled.
  - GT21
    When the GOT backlight has a failure, the display section dims. In such a case, the input by the touch switches is disabled.

  Even if the display section dims on the liquid crystal of the GOT, the input by the touch switch(s) may remain enabled. This may cause a malfunction of the touch switch.
  For example, if an operator assumes that the display section has dimmed because of the screen save function and touches the display section to cancel the screen save, a touch switch may be activated.
  The GOT backlight failure can be checked with a system signal of the GOT.

# [DESIGN PRECAUTIONS]

## ⚠ WARNING

- The display section of the GOT is an analog-resistive type touch panel.
  When multiple points of the display section are touched simultaneously, an accident may occur due to incorrect output or malfunction.
  - GT27
    Do not touch three points or more simultaneously on the display section. Doing so may cause an accident due to an incorrect output or malfunction.
  - GT25,GT23,GT21
    Do not touch two points or more simultaneously on the display section. Doing so may operate the switch located around the center of the touched point, or may cause an accident due to an incorrect output or malfunction.
- When programs or parameters of the controller (such as a PLC) that is monitored by the GOT are changed, be sure to reset the GOT, or turn on the unit again after shutting off the power as soon as possible.
  Not doing so can cause an accident due to false output or malfunction.
- If a communication fault (including cable disconnection) occurs during monitoring on the GOT, communication between the GOT and PLC CPU is suspended and the GOT becomes inoperative.
  For bus connection (GT27,GT25 Only) : The CPU becomes faulty and the GOT becomes inoperative.
  For other than bus connection : The GOT becomes inoperative.
  A system where the GOT is used should be configured to perform any significant operation to the system by using the switches of a device other than the GOT on the assumption that a GOT communication fault will occur.
  Not doing so can cause an accident due to false output or malfunction.

## [DESIGN PRECAUTIONS]

### ⚠CAUTION

- Do not bundle the control and communication cables with main-circuit, power or other wiring.
  Run the above cables separately from such wiring and keep them a minimum of 100mm apart.
  Not doing so noise can cause a malfunction.
- Do not press the GOT display section with a pointed material as a pen or driver.
  Doing so can result in a damage or failure of the display section.
- When the GOT is connected to the Ethernet network, the available IP address is restricted according to the system configuration.
  - When multiple GOTs are connected to the Ethernet network :
    Do not set the IP address (192.168.3.18) for the GOTs and the controllers in the network.
  - When a single GOT is connected to the Ethernet network :
    Do not set the IP address (192.168.3.18) for the controllers except the GOT in the network.

  Doing so can cause the IP address duplication.
  The duplication can negatively affect the communication of the device with the IP address (192.168.3.18).
  The operation at the IP address duplication depends on the devices and the system.
- Turn on the controllers and the network devices to be ready for communication before they communicate with the GOT.
  Failure to do so can cause a communication error on the GOT.
- When the GOT is subject to shock or vibration, or some colors appear on the screen of the GOT, the screen of the GOT might flicker.

## [MOUNTING PRECAUTIONS]

### ⚠WARNING

- Be sure to shut off all phases of the external power supply used by the system before mounting or removing the GOT main unit to/from the panel.
  Not doing so can cause the unit to fail or malfunction.
- Be sure to shut off all phases of the external power supply used by the system before mounting or removing the option unit onto/from the GOT. (GT27,GT25 Only)

## [MOUNTING PRECAUTIONS]

### ⚠CAUTION

- Use the GOT in the environment that satisfies the general specifications described in this manual. Not doing so can cause an electric shock, fire, malfunction or product damage or deterioration.
- When mounting the GOT to the control panel, tighten the mounting screws in the specified torque range with a Phillips-head screwdriver No.2.
  - GT27,GT25,GT23
    Specified torque range (0.36 N•m to 0.48 N•m)
  - GT21
    Specified torque range (0.20 N•m to 0.25 N•m)

  Undertightening can cause the GOT to drop, short circuit or malfunction.
  Overtightening can cause a drop, short circuit or malfunction due to the damage of the screws or the GOT.
- When mounting a unit on the GOT, tighten the mounting screws in the following specified torque range.
  - GT27,GT25
    When loading the communication unit or option unit other than wireless LAN unit to the GOT, fit it to the connection interface of the GOT and tighten the mounting screws in the specified torque range (0.36 N•m to 0.48 N•m) with a Phillips-head screwdriver No.2.
    When loading the wireless LAN unit to the GOT, fit it to the side interface of GOT and tighten the mounting screws in the specified torque range (0.10 N•m to 0.14 N•m) with a Phillips-head screwdriver No.1.
    When the GOT is installed vertically, its side interface is positioned on the bottom.
    To prevent the falling of the wireless LAN communication unit from the side interface, install or remove the unit while holding it with hands.
  - GT21
    When mounting the SD card unit on the GOT, fit it to the side of the GOT and tighten the tapping screws in the specified torque range (0.3 N•m to 0.6 N•m) with a Phillips-head screwdriver No.2.

  Under tightening can cause the GOT to drop, short circuit or malfunction.
  Overtightening can cause a drop, failure or malfunction due to the damage of the screws or unit.
- When closing the USB environmental protection cover, fix the cover to the GOT by pushing the [PUSH] mark on the latch firmly to comply with the protective structure.(GT27,GT25 Only)
- Remove the protective film of the GOT.
  When the user continues using the GOT with the protective film, the film may not be removed.
  In addition, for the models equipped with the human sensor function, using the GOT with the protective film may cause the human sensor not to function properly
- Operate and store the GOT in environments without direct sunlight, high temperature, dust, humidity, and vibrations.
- When using the GOT in the environment of oil or chemicals, use the protective cover for oil.
  Failure to do so may cause failure or malfunction due to the oil or chemical entering into the GOT.

## [WIRING PRECAUTIONS]

### ⚠WARNING

- Be sure to shut off all phases of the external power supply used by the system before wiring.
  Failure to do so may result in an electric shock, product damage or malfunctions.

## [WIRING PRECAUTIONS]

### ⚠CAUTION

- Make sure to ground the FG terminal and LG terminal of the GOT power supply section to the protective ground conductors dedicated to the GOT with a ground resistance of 100 Ω or less. (GT21 does not have the LG terminal.)
- When tightening the terminal screws, use a Phillips-head screwdriver No.2.
- Tighten the terminal screws of the GOT power supply section in the following specified torque range.
  - GT27,GT25,GT23
    Specified torque range (0.5 N•m to 0.8 N•m)
- For a terminal processing of a wire to the GOT power supply section, use the following terminal.
  - GT27,GT25,GT23
    Use applicable solderless terminals for terminal processing of a wire and tighten them with the specified torque.
    Not doing so can cause a fire, failure or malfunction.
  - GT21
    Connect a stranded wire or a single wire directly, or use a rod terminal with an insulation sleeve.
- Correctly wire the GOT power supply section after confirming the rated voltage and terminal arrangement of the product.
  Not doing so can cause a fire or failure.
- Tighten the terminal screws of the GOT power supply section in the following specified torque range.
  - GT27,GT25,GT23
    Specified torque range (0.5 N•m to 0.8 N•m)
  - GT21
    Specified torque range (0.22 N•m to 0.25 N•m)
- Exercise care to avoid foreign matter such as chips and wire offcuts entering the GOT.
  Not doing so can cause a fire, failure or malfunction.
- The module has an ingress prevention label on its top to prevent foreign matter, such as wire offcuts, from entering the module during wiring.
  Do not peel this label during wiring.Before starting system operation, be sure to peel this label because of heat dissipation. (GT27,GT25 Only)
- Plug the communication cable into the GOT interface or the connector of the connected unit, and tighten the mounting screws and the terminal screws in the specified torque range.
  Undertightening can cause a short circuit or malfunction.
  Overtightening can cause a short circuit or malfunction due to the damage of the screws or unit.
- Plug the QnA/ACPU/Motion controller(A series) bus connection cable by inserting it into the connector of the connected unit until it "clicks".
  After plugging, check that it has been inserted snugly.
  Not doing so can cause a malfunction due to a contact fault.(GT27,GT25 Only)

## [TEST OPERATION PRECAUTIONS]

### ⚠WARNING

- Before performing the test operations of the user creation monitor screen (such as turning ON or OFF bit device, changing the word device current value, changing the settings or current values of the timer or counter, and changing the buffer memory current value), read through the manual carefully and make yourself familiar with the operation method.
  During test operation, never change the data of the devices which are used to perform significant operation for the system.
  False output or malfunction can cause an accident.

## [STARTUP/MAINTENANCE PRECAUTIONS]

### ⚠WARNING

- When power is on, do not touch the terminals.
  Doing so can cause an electric shock or malfunction.
- Correctly connect the battery connector.
  Do not charge, disassemble, heat, short-circuit, solder, or throw the battery into the fire.
  Doing so will cause the battery to produce heat, explode, or ignite, resulting in injury and fire.
- Before starting cleaning or terminal screw retightening, always switch off the power externally in all phases.
  Not switching the power off in all phases can cause a unit failure or malfunction.
  Undertightening can cause a short circuit or malfunction.
  Overtightening can cause a short circuit or malfunction due to the damage of the screws or unit.

## [STARTUP/MAINTENANCE PRECAUTIONS]

### ⚠CAUTION

- Do not disassemble or modify the unit.
  Doing so can cause a failure, malfunction, injury or fire.
- Do not touch the conductive and electronic parts of the unit directly.
  Doing so can cause a unit malfunction or failure.
- The cables connected to the unit must be run in ducts or clamped.
  Not doing so can cause the unit or cable to be damaged due to the dangling, motion or accidental pulling of the cables or can cause a malfunction due to a cable connection fault.
- When unplugging the cable connected to the unit, do not hold and pull from the cable portion.
  Doing so can cause the unit or cable to be damaged or can cause a malfunction due to a cable connection fault.
- Do not drop the module or subject it to strong shock. A module damage may result.
- Do not drop or give an impact to the battery mounted to the unit.
  Doing so may damage the battery, causing the battery fluid to leak inside the battery.
  If the battery is dropped or given an impact, dispose of it without using.
- Before touching the unit, always touch grounded metals, etc. to discharge static electricity from human body, etc.
  Not doing so can cause the unit to fail or malfunction.
- Use the battery manufactured by Mitsubishi Electric Corporation.
  Use of other batteries may cause a risk of fire or explosion.
- Dispose of used battery promptly.
  Keep away from children.Do not disassemble and do not dispose of in fire.
- Be sure to shut off all phases of the external power supply before replacing the battery or using the dip switch of the terminating resistor.
  Not doing so can cause the unit to fail or malfunction by static electricity.

## [TOUCH PANEL PRECAUTIONS]

### ⚠CAUTION

- For the analog-resistive film type touch panels, normally the adjustment is not required.
  However, the difference between a touched position and the object position may occur as the period of use elapses.
  When any difference between a touched position and the object position occurs, execute the touch panel calibration.
- When any difference between a touched position and the object position occurs, other object may be activated.
  This may cause an unexpected operation due to incorrect output or malfunction.

## [PRECAUTIONS WHEN THE DATA STORAGE IS IN USE]

### ⚠WARNING

- If the SD card is removed from drive A of the GOT while being accessed by the GOT, the GOT may stop processing data for about 20 seconds.
  The GOT cannot be operated during this period.
  The functions that run in the background including a screen updating, alarm, logging, scripts, and others are also interrupted.
  Remove the SD card after checking the following items.
  - GT27,GT25,GT23
    After checking the light off of SD card access LED, remove the SD card.
  - GT21
    After disabling SD card access on the utility screen of the GOT and checking that the SD card access LED is off, remove the SD card.

### ⚠CAUTION

- If the data storage is removed from the GOT while being accessed by the GOT, the data storage and files may be damaged.
  Before removing the data storage from the GOT, check the SD card access LED, system signal, or others to make sure that the data storage is not accessed.
- Turning off the GOT while it accesses the SD card results in damage to the SD card and files.
- When using the GOT with an SD card inserted, check the following items.
  - GT27,GT25,GT23
    When inserting a SD card into the GOT, make sure to close the SD card cover.
    Failure to do so causes the data not to be read or written.
  - GT21
    When using an SD card connected to the SD card unit or the GOT, enable the SD card access in the GOT utility in advance.
    Failure to do so causes the data not to be read or written.
- When removing the SD card from the GOT, make sure to support the SD card by hand as it may pop out.
  Failure to do so may cause the SD card to drop from the GOT, resulting in a failure or break.
- When inserting a USB device into a USB interface of the GOT, make sure to insert the device into the interface firmly.
  Failure to do so may cause the USB device to drop from the GOT, resulting in a failure or break.
- Before removing the USB device from the GOT, follow the procedure for removal on the utility screen of the GOT.
  After the successful completion dialog is displayed, remove the USB device by hand carefully.
  Failure to do so may cause the USB device to drop from the GOT, resulting in a failure or break.

## [DISPOSAL PRECAUTIONS]

### ⚠CAUTION

- When disposing of this product, treat it as industrial waste.
  When disposing of batteries, separate them from other wastes according to the local regulations.
  (Refer to the GOT2000 Series User's Manual (Hardware) for details of the battery directive in the EU member states.)

## [TRANSPORTATION PRECAUTIONS]

### ⚠CAUTION

- When transporting lithium batteries, make sure to treat them based on the transport regulations.
  (Refer to the GOT2000 Series User's Manual (Hardware) for details of the regulated models.)
- Make sure to transport the GOT main unit and/or relevant unit(s) in the manner they will not be exposed to the impact exceeding the impact resistance described in the general specifications of this manual, as they are precision devices.
  Failure to do so may cause the unit to fail.
  Check if the unit operates correctly after transportation.
- When fumigants that contain halogen materials such as fluorine, chlorine, bromine, and iodine are used for disinfecting and protecting wooden packaging from insects, they cause malfunction when entering our products.
  Please take necessary precautions to ensure that remaining materials from fumigant do not enter our products, or treat packaging with methods other than fumigation (heat method).
  Additionally, disinfect and protect wood from insects before packing products.

# INTRODUCTION

Thank you for choosing Mitsubishi Graphic Operation Terminal (Mitsubishi GOT).
Read this manual and make sure you understand the functions and performance of the GOT thoroughly in advance to ensure correct use.

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# List of Manuals for GT Works3

For the manuals related to this product, install the manuals with the drawing software.
If you need a printed manual, consult your local Mitsubishi representative or branch office.

## ■1. List of Manuals for GT Designer3(GOT2000)

### (1) Screen drawing software manuals

| Manual name | Manual number (Model code) |
|---|---|
| GT Works3 Version1 Installation Procedure Manual | - |
| GT Designer3 (GOT2000) Help | - |
| GT Converter2 Version3 Operating Manual for GT Works3 | SH-080862ENG (1D7MB2) |
| GOT2000 Series MES Interface Function Manual for GT Works3 Version1 | SH-081228ENG |

### (2) Connection manuals

| Manual name | Manual number (Model code) |
|---|---|
| GOT2000 Series Connection Manual (Mitsubishi Products) For GT Works3 Version1 | SH-081197ENG (1D7MJ8) |
| GOT2000 Series Connection Manual (Non-Mitsubishi Products 1) For GT Works3 Version1 | SH-081198ENG |
| GOT2000 Series Connection Manual (Non-Mitsubishi Products 2) For GT Works3 Version1 | SH-081199ENG |
| GOT2000 Series Connection Manual (Microcomputers, MODBUS/Fieldbus Products, Peripherals) For GT Works3 Version1 | SH-081200ENG |

### (3) GT SoftGOT2000 manuals

| Manual name | Manual number (Model code) |
|---|---|
| GT SoftGOT2000 Version1 Operating Manual | SH-081201ENG |

### (4) GOT2000 manuals

| Manual name | Manual number (Model code) |
|---|---|
| GOT2000 Series User's Manual (Hardware) | SH-081194ENG (1D7MJ5) |
| GOT2000 Series User's Manual (Utility) | SH-081195ENG (1D7MJ6) |
| GOT2000 Series User's Manual (Monitor) | SH-081196ENG (1D7MJ7) |

# Abbreviations, Generic Terms, the meaning of the icon

The following shows the abbreviations and generic terms used in Help.

## ■1. GOT

| Abbreviations and generic terms | | | | Description | Meaning of icon | |
|---|---|---|---|---|---|---|
| | | | | | Support | Not support |
| GOT2000 Series | GT27 | GT27-X | GT2715-X | GT2715-XTBA, GT2715-XTBD | GT27 | - |
| | | GT27-S | GT2712-S | GT2712-STBA, GT2712-STWA, GT2712-STBD, GT2712-STWD | | |
| | | | GT2710-S | GT2710-STBA, GT2710-STBD | | |
| | | GT27-V | GT2710-V | GT2710-VTBA, GT2710-VTWA, GT2710-VTBD, GT2710-VTWD | | |
| | | GT27-S | GT2708-S | GT2708-STBA, GT2708-STBD | | |
| | | GT27-V | GT2708-V | GT2708-VTBA, GT2708-VTBD | | |
| | | | GT2705-V | GT2705-VTBD | | |
| | GT25 | GT25-S | GT2512-S | GT2512-STBA, GT2512-STBD | GT25 | - |
| | | GT25-V | GT2510-V | GT2510-VTBA, GT2510-VTWA, GT2510-VTBD, GT2510-VTWD | | |
| | | | GT2508-V | GT2508-VTBA, GT2508-VTWA, GT2508-VTBD, GT2508-VTWD | | |
| | GT23 | GT23-V | GT2310-V | GT2310-VTBA, GT2310-VTBD | GT23 | - |
| | | | GT2308-V | GT2308-VTBA, GT2308-VTBD | | |
| | GT21 | | | GT21 | GT21 | - |
| | | GT21-R | GT2104-R | GT2104-RTBD | GT21 04R | - |
| | | GT21-P | GT2103-P | GT2103-PMBD | GT21 03P ET/R4 | - |
| | | | | GT2103-PMBDS | GT21 03P R4 | - |
| | | | | GT2103-PMBDS2 | GT21 03P R2 | - |
| | | | | GT2103-PMBLS | GT21 03P R4-5V | - |
| | GT SoftGOT2000 | | | GT SoftGOT2000 Version1 | Soft GOT 2000 | - |
| GOT1000 Series | | | | GOT1000 Series | - | |
| GOT900 Series | | | | GOT-A900 Series, GOT-F900 Series | - | |
| GOT800 Series | | | | GOT-800 Series | - | |

## ■2. Communication unit

| Abbreviations and generic terms | Description |
|---|---|
| Bus connection unit | GT15-QBUS, GT15-QBUS2, GT15-ABUS, GT15-ABUS2, GT15-75QBUSL, GT15-75QBUS2L, GT15-75ABUSL, GT15-75ABUS2L |
| Serial communication unit | GT15-RS2-9P, GT15-RS4-9S, GT15-RS4-TE |
| MELSECNET/H communication unit | GT15-J71LP23-25, GT15-J71BR13 |
| CC-Link IE Controller Network communication unit | GT15-J71GP23-SX |
| CC-Link IE Field Network communication unit | GT15-J71GF13-T2 |
| CC-Link communication unit | GT15-J61BT13 |
| Wireless LAN communication unit | GT25-WLAN |
| Serial multi-drop connection unit | GT01-RS4-M |
| Connection conversion adapter | GT10-9PT5S |
| Field network adapter unit | GT25-FNADP |

## ■3. Option unit

| Abbreviations and generic terms | | Description |
|---|---|---|
| Printer unit | | GT15-PRN |
| Video/RGB unit | Video input unit | GT27-V4-Z (A set of GT16M-V4-Z and GT27-IF1000) |
| | RGB input unit | GT27-R2, GT27-R2-Z (A set of GT16M-R2-Z and GT27-IF1000) |
| | Video/RGB input unit | GT27-V4R1-Z (A set of GT16M-V4R1-Z and GT27-IF1000) |
| | RGB output unit | GT27-ROUT, GT27-ROUT-Z (A set of GT16M-ROUT-Z and GT27-IF1000) |
| Multimedia unit | | GT27-MMR-Z (A set of GT16M-MMR-Z and GT27-IF1000) |
| Video signal conversion unit | | GT27-IF1000 |
| External I/O unit | | GT15-DIO, GT15-DIOR |
| Sound output unit | | GT15-SOUT |

## ■4. Option

| Abbreviations and generic terms | Description |
|---|---|
| SD card | NZ1MEM-2GBSD, NZ1MEM-4GBSD, NZ1MEM-8GBSD, NZ1MEM-16GBSD, L1MEM-2GBSD, L1MEM-4GBSD |
| Battery | GT11-50BAT |
| Protective sheet | GT27-15PSGC, GT25-12PSGC, GT25-10PSGC, GT25-08PSGC, GT25-05PSGC, GT21-04RPSGC-UC, GT21-03PSGC-UC, GT27-15PSCC, GT25-12PSCC, GT25-10PSCC, GT25-08PSCC, GT25- 12PSCC-UC, GT25-10PSCC-UC, GT25-08PSCC-UC, GT25-05PSCC, GT21-04RPSCC-UC, GT21-03PSCC-UC |
| Protective cover for oil | GT20-15PCO, GT20-12PCO, GT20-10PCO, GT20-08PCO, GT25-05PCO, GT10-20PCO |
| USB environmental protection cover | GT25-UCOV, GT25-05UCOV |
| Stand | GT15-90STAND, GT15-80STAND, GT15-70STAND, GT15-60STAND |
| Attachment | GT15-70ATT-98, GT15-70ATT-87, GT15-60ATT-97, GT15-60ATT-96, GT15-60ATT-87, GT15-60ATT-77 |

## ■5. Software

### (1) Software related to GOT

| Abbreviations and generic terms | Description |
|---|---|
| GT Works3 | SW1DND-GTWK3-J, SW1DND-GTWK3-E, SW1DND-GTWK3-C |
| GT Designer3 Version1 | Screen drawing software GT Designer3 for GOT2000/GOT1000 series |
| GT Designer3 | Screen drawing software for GOT2000 series included in GT Works3 |
| GT Designer3 (GOT2000) | |
| GT Designer3 (GOT1000) | Screen drawing software for GOT1000 series included in GT Works3 |
| GT Simulator3 | Screen simulator GT Simulator3 for GOT2000/GOT1000/GOT900 series |
| GT SoftGOT2000 | Monitoring software GT SoftGOT2000 series |
| GT Converter2 | Data conversion software GT Converter2 for GOT1000/GOT900 series |
| GT Designer2 Classic | Screen drawing software GT Designer2 Classic for GOT900 series |
| GT Designer2 | Screen drawing software GT Designer2 for GOT1000/GOT900 series |
| DU/WIN | Screen drawing software FX-PCS-DU/WIN for GOT-F900 series |

### (2) Software related to iQ Works

| Abbreviations and generic terms | Description |
|---|---|
| iQ Works | Abbreviation of iQ Platform compatible engineering environment MELSOFT iQ Works |
| MELSOFT Navigator | Generic term for integrated development environment software included in the SW DNC-IQWK (iQ Platform compatible engineering environment MELSOFT iQ Works)<br>(□ indicates a version.) |

### (3) Other software

| Abbreviations and generic terms | | Description |
|---|---|---|
| GX Works3 | | SW□DND-GXW3-E (-EA) type programmable controller engineering software<br>(□ indicates a version.) |
| GX Works2 | | SW□DNC-GXW2-□ type programmable controller engineering software<br>(□ indicates a version.) |
| Controller simulator | GX Simulator3 | Simulation function of GX Works3 |
| | GX Simulator2 | Simulation function of GX Works2 |
| | GX Simulator | SW□D5C-LLT-E (-EV) type ladder logic test tool function software package (SW5D5C-LLT (-V) or later versions)<br>(□ indicates a version.) |
| GX Developer | | SW□D5C-GPPW-E (-EV)/SW□D5F-GPPW (-V) type software package<br>(□ indicates a version.) |
| GX LogViewer | | SW□DNN-VIEWER-E type software package<br>(□ indicates a version.) |
| PX Developer | | SW□D5C-FBDQ-E type FBD software package for process control<br>(□ indicates a version.) |
| MT Works2 | | Motion controller engineering environment MELSOFT MT Works2 (SW□DND-MTW2-E)<br>(□ indicates a version.) |
| MT Developer | | SW□RNC-GSV type integrated start-up support software for motion controller Q series<br>(□ indicates a version.) |
| CW Configurator | | C Controller module configuration and monitor tool (SW1DND-RCCPU-E)<br>(□ indicates a version.) |
| MR Configurator2 | | SW□DNC-MRC2-E type servo configuration software<br>(□ indicates a version.) |
| MR Configurator | | MRZJW□-SETUP type servo configuration software<br>(□ indicates a version.) |
| FR Configurator | | Inverter setup software (FR-SW□-SETUP-WE)<br>(□ indicates a version.) |
| NC Configurator2 | | CNC parameter setting support tool (FCSB1221) |
| NC Configurator | | CNC parameter setting support tool |
| FX Configurator-FP | | Parameter setting, monitoring, and testing software packages for FX3U-20SSC-H (SW□D5CFXSSCE)<br>(□ indicates a version.) |
| FX3U-ENET-L Configuration tool | | FX3U-ENET-L type Ethernet module setting software (SW1D5-FXENETL-E) |
| RT ToolBox2 | | Robot program creation software (3D-11C-WINE) |
| MX Component | | MX Component Version□ (SW□D5C-ACT-E, SW□D5C-ACT-EA)<br>(□ indicates a version.) |
| MX Sheet | | MX Sheet Version□ (SW□D5C-SHEET-E, SW□D5C-SHEET-EA)<br>(□ indicates a version.) |
| CPU Module Logging Configuration Tool | | CPU module logging configuration tool (SW1DNN-LLUTL-E) |

## ■6. License key (for GT SoftGOT2000)

| Abbreviations and generic terms | Description |
|---|---|
| License key | GT27-SGTKEY-U |

## ■7. Others

| Abbreviations and generic terms | Description |
|---|---|
| IAI | IAI Corporation |
| AZBIL | Azbil Corporation |
| OMRON | OMRON Corporation |
| KEYENCE | KEYENCE CORPORATION |
| KOYO EI | KOYO ELECTRONICS INDUSTRIES CO., LTD. |
| JTEKT | JTEKT Corporation |
| SHARP | Sharp Manufacturing Systems Corporation |
| SHINKO | Shinko Technos Co., Ltd. |
| CHINO | CHINO CORPORATION |
| TOSHIBA | TOSHIBA CORPORATION |
| TOSHIBA MACHINE | TOSHIBA MACHINE CO., LTD. |
| PANASONIC | Panasonic Corporation |
| PANASONIC IDS | Panasonic Industrial Devices SUNX Co., Ltd. |
| HITACHI IES | Hitachi Industrial Equipment Systems Co., Ltd. |
| HITACHI | Hitachi, Ltd. |
| FUJI | FUJI ELECTRIC CO., LTD. |
| YASKAWA | YASKAWA Electric Corporation |
| YOKOGAWA | Yokogawa Electric Corporation |
| RKC | RKC INSTRUMENT INC. |
| ALLEN-BRADLEY | Allen-Bradley products manufactured by Rockwell Automation, Inc. |
| GE | GE Intelligent Platforms, Inc. |
| HMS | HMS Industrial Networks |
| LS IS | LS Industrial Systems Co., Ltd. |
| MITSUBISHI INDIA | Mitsubishi Electric India Pvt. Ltd. |
| ODVA | Open DeviceNet Vendor Association, Inc. |
| SCHNEIDER | Schneider Electric SA |
| SICK | SICK AG |
| SIEMENS | Siemens AG |
| PLC | Programmable controller manufactured by each corporation |
| Control equipment | Control equipment manufactured by each corporation |
| Temperature controller | Temperature controller manufactured by each corporation |
| Indicating controller | Indicating controller manufactured by each corporation |
| Controller | Controller manufactured by each corporation |

# 1

# PREPARATORY PROCEDURES FOR MONITORING


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# 1. PREPARATORY PROCEDURES FOR MONITORING

The following shows the procedures to be taken before monitoring and corresponding reference sections.

**Setting the communication interface**

Determine the connection type and channel No. to be used, and perform the communication setting.

1.1Setting the Communication Interface
Each chapter GOT Side Settings

↓

**Writing the project data and OS**

Write the standard monitor OS, communication driver, extended function OS, project data and communication settings onto the GOT.

1.2.1Writing the project data and OS onto the GOT

↓

**Verifying the project data and OS**

Verify the standard monitor OS, communication driver, extended function OS, project data and communication settings are properly written onto the GOT.

1.2.2Checking the project data and OS writing on GOT

↓

**Attaching the communication unit and connecting the cable**

Mount the optional equipment and prepare/connect the connection cable according to the connection type.

1.3Option Devices for the Respective Connection
1.4Connection Cables for the Respective Connection
Each chapter System Configuration
Each chapter Connection Diagram

↓

**Verifying GOT recognizes connected equipment**

Verify the GOT recognizes controllers on [Communication Settings] of the Utility.

1.5Verifying GOT Recognizes Connected Equipment

↓

**Verifying the GOT is monitoring normally**

Verify the GOT is monitoring normally using Utility, Developer, etc.

1.6Checking for Normal Monitoring

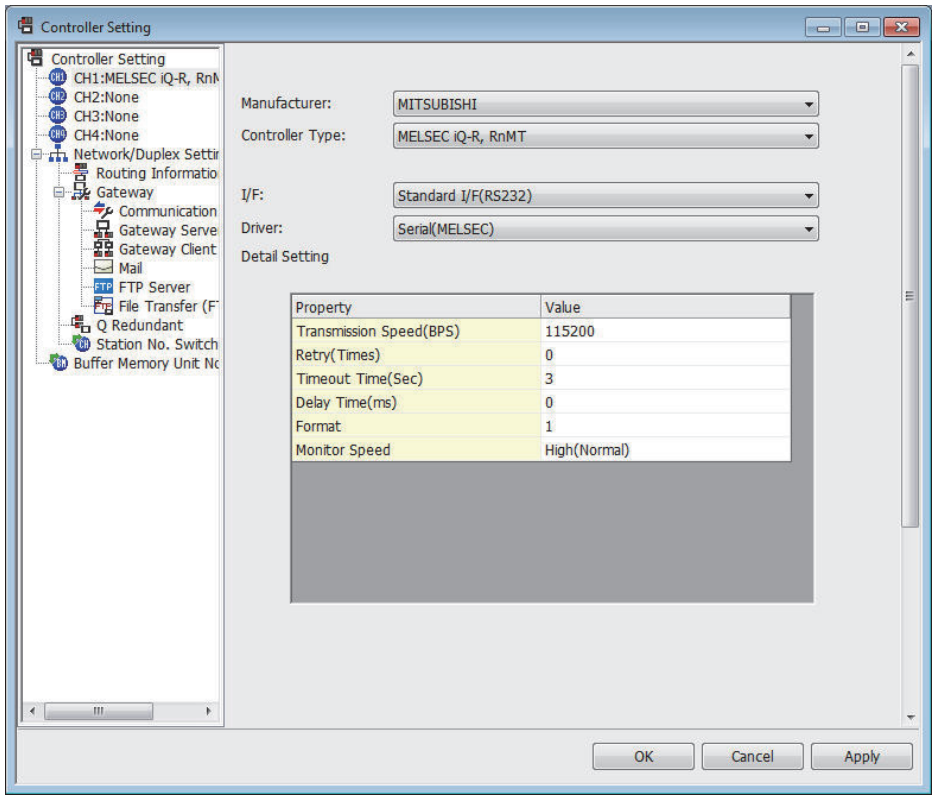
# 1.1 Setting the Communication Interface

Set the communication interface of GOT and the connected equipment.
When using the GOT at the first time, make sure to set the channel of communication interface and the communication driver before writing to GOT.
Set the communication interface of the GOT at [Controller Setting] and [I/F Communication Setting] in GT Designer3.

## 1.1.1 Setting connected equipment (Channel setting)

Set the channel of the equipment connected to the GOT.

■ Setting




1. Select [Common] → [Controller Setting] from the menu.
2. The Controller Setting dialog box appears. Select the channel No. to be used from the list menu.
3. Refer to the following explanations for the setting.

**POINT**

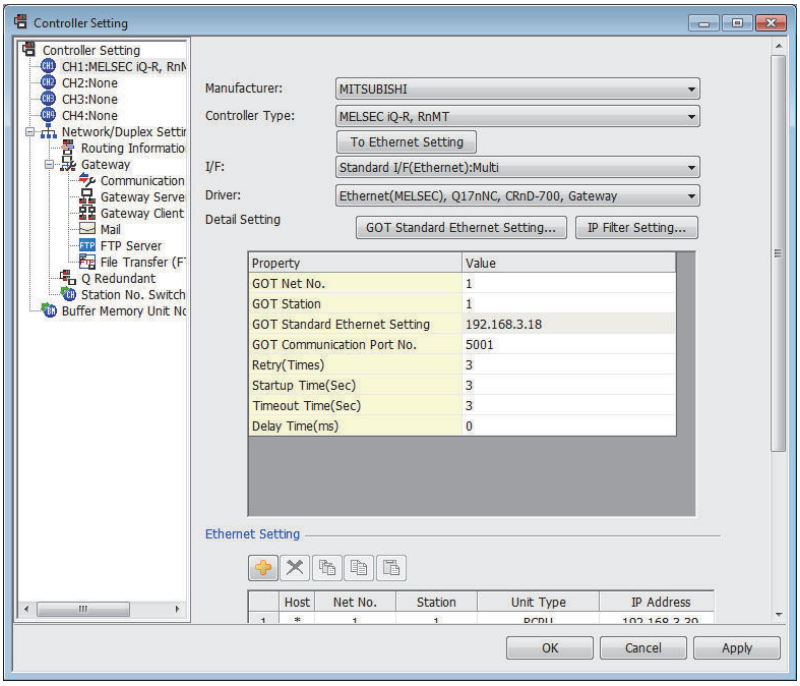
Channel No.2 to No.4

Use the channel No.2 to No.4 when using the Multi-channel function.
For details of the Multi-channel function, refer to the following.

☞ Mitsubishi Products 20. MULTI-CHANNEL FUNCTION

## ■ Setting item

This section describes the setting items of the Manufacturer, Controller Type, Driver and I/F.
When using the channel No.2 to No.4, put a check mark at [Use CH*].




| Item | Description |
|---|---|
| Use CH* | Select this item when setting the channel No.2 to No.4. |
| Manufacturer | Select the manufacturer of the equipment to be connected to the GOT. |
| Type | Select the type of the equipment to be connected to the GOT. For the settings, refer to the following.<br>☞ (2)Setting [Controller Type] |
| I/F | Select the interface of the GOT to which the equipment is connected. For the settings, refer to the following.<br>☞ (3)Setting [I/F] |
| Driver | Select the communication driver to be written to the GOT. For the settings, refer to the following.<br>☞ (1)Setting [Driver] |
| Detail Setting | Make settings for the transmission speed and data length of the communication driver.<br>☞ Refer to each chapter of the equipment to be connected to the GOT. |

### (1) Setting [Driver]

The displayed items for a driver differ according to the settings [Manufacturer], [Controller Type] and [I/F].
When the driver to be set is not displayed, confirm if [Manufacturer], [Controller Type] and [I/F] are correct.
For the settings, refer to the following.

☞ [Setting the communication interface] section in each chapter

(2) Setting [Controller Type]

The types for the selection differ depending on the PLC to be used.
For the settings, refer to the following.

| Type | Model name |
|---|---|
| HITACHI HIDIC H Series | H-302 |
| | H-702 |
| | H-1002 |
| | H-2002 |
| | H-4010 |
| | H-300 |
| | H-700 |
| | H-2000 |
| | H-200 |
| | H-250 |
| | H-252 |
| | H-252B |
| | H-252C |
| | H-20DR |
| | H-28DR |
| | H-40DR |
| | H-64DR |
| | H-20DT |
| | H-28DT |
| | H-40DT |
| | H-64DT |
| | HL-40DR |
| | HL-64DR |
| | EH-CPU104 |
| | EH-CPU208 |
| | EH-CPU308 |
| | EH-CPU316 |
| HITACHI S10mini/S10V | LQP510 |
| | LQP520 |
| | LQP800 |
| | LQP000 |
| | LQP010 |
| | LQP011 |
| | LQP120 |
| FUJI MICREX-F Series | F55 |
| | F70 |
| | F120S |
| | F140S |
| | F15□S |
| FUJI MICREX-SX SPH | SPH200 |
| | SPH300 |
| | SPH2000 |
| | SPH3000 |
| FUJI PXR/PXG/PXH | PXR3 |
| | PXR4 |
| | PXR5 |
| | PXR9 |

| Type | Model name |
|---|---|
| FUJI PXR/PXG/PXH | PXG4 |
| | PXG5 |
| | PXG9 |
| | PXH9 |
| YASKAWA GL/PROGIC8 | PROGIC-8 |
| | GL120 |
| | GL130 |
| | GL60S |
| | GL60H |
| | GL70H |
| YASKAWA CP-9200SH/MP-900 Series | MP920 |
| | MP930 |
| | MP940 |
| | CP-9200SH |
| YASKAWA CP-9200 (H) | CP-9200(H) |
| YASKAWA CP-9300MS (MC compatible) | CP-9300MS |
| YASKAWA MP2000/MP900/CP9200SH Series | MP2200 |
| | MP2300 |
| | MP920 |
| | MP930 |
| | MP940 |
| | CP-9200SH |
| | CP-312 |
| | CP-317 |
| YOKOGAWA FA500/FA-M3 Series | FA500 |
| | F3SP05 |
| | F3SP08 |
| | F3SP10 |
| | F3SP20 |
| | F3SP30 |
| | F3FP36 |
| | F3SP21 |
| | F3SP25 |
| | F3SP35 |
| | F3SP28 |
| | F3SP38 |
| | F3SP53 |
| | F3SP58 |
| | F3SP59 |
| | F3SP66 |
| | F3SP67 |
| | F3SP76-7S |

| Type | Model name |
|---|---|
| YOKOGAWA STARDOM/FA-M3 Series | NFCP100 |
| | NFJT100 |
| | F3SP05 |
| | F3SP08 |
| | F3SP10 |
| | F3SP20 |
| | F3SP30 |
| | F3FP36 |
| | F3SP21 |
| | F3SP25 |
| | F3SP35 |
| | F3SP28 |
| | F3SP38 |
| | F3SP53 |
| | F3SP58 |
| | F3SP59 |
| | F3SP66 |
| | F3SP67 |
| | F3SP76-7S |
| YOKOGAWA GREEN/UT100/UT2000 / UTAdvanced Series | UT320 |
| | UT321 |
| | UT350 |
| | UT351 |
| | UT420 |
| | UT450 |
| | UT520 |
| | UT550 |
| | UT551 |
| | UT750 |
| | UP350 |
| | UP351 |
| | UP550 |
| | UP750 |
| | UM330 |
| | UM331 |
| | UM350 |
| | UM351 |
| | US1000 |
| | UT130 |
| | UT150 |
| | UT152 |
| | UT155 |
| | UP150 |
| | UT2400 |
| | UT2800 |
| | UT32A |

| Type | Model name |
|---|---|
| YOKOGAWA GREEN/UT100/UT2000 / UTAdvanced Series | UT35A |
| | UT52A |
| | UT55A |
| | UP35A |
| | UP55A |
| | UM33A |
| RKC SR Mini HG | H-PCP-J |
| | H-PCP-A |
| | H-PCP-B |
| | Z-TIO |
| | Z-DIO |
| | Z-CT |
| | CB100 |
| | CB400 |
| | CB500 |
| | CB700 |
| | CB900 |
| | FB100 |
| | FB400 |
| | FB900 |
| | RB100 |
| | RB400 |
| | RB500 |
| | RB700 |
| | RB900 |
| | PF900 |
| | PF901 |
| | HA400/401 |
| | HA900/901 |
| | RMC500 |
| | MA900 |
| | MA901 |
| | AG500 |
| | THV-A1 |
| | SA100 |
| | SA200 |
| | X-TIO |
| AB SLC500 | SLC500-20 |
| | SLC500-30 |
| | SLC500-40 |
| | SLC5/01 |
| | SLC5/02 |
| | SLC5/03 |
| | SLC5/04 |
| | SLC5/05 |

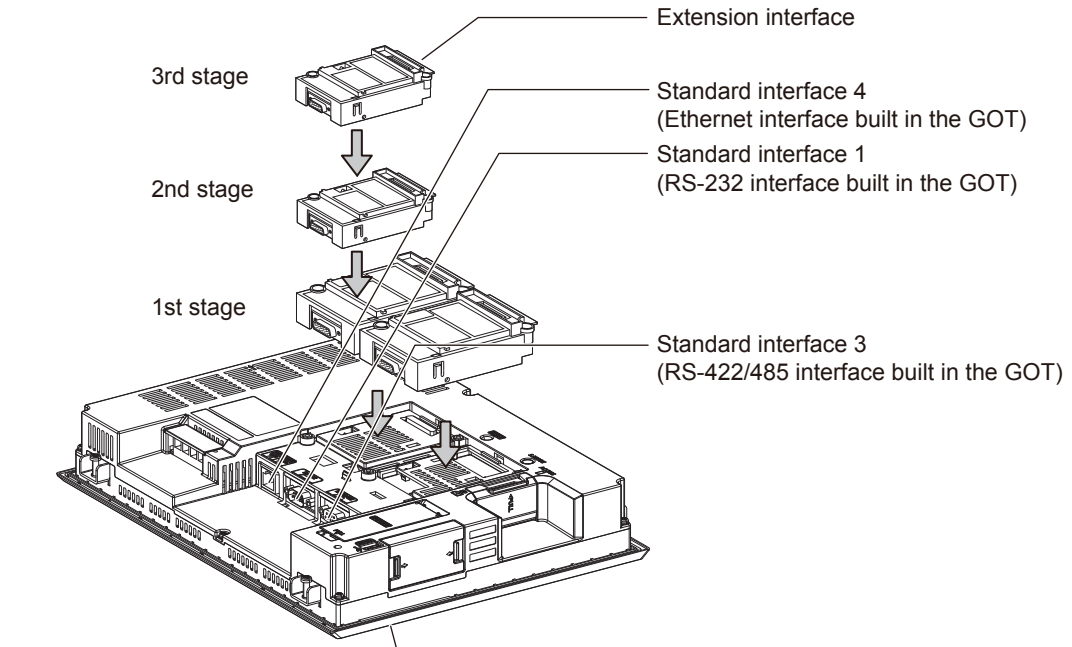
| Type | Model name |
|---|---|
| AB MicroLogix1000/1200/1500 Series | 1761-L10BWA |
| | 1761-L10BWB |
| | 1761-L16AWA |
| | 1761-L16BWA |
| | 1761-L16BWB |
| | 1761-L16BBB |
| | 1761-L32AWA |
| | 1761-L32BWA |
| | 1761-L32BWB |
| | 1761-L32BBB |
| | 1761-L32AAA |
| | 1761-L20AWA-5A |
| | 1761-L20BWA-5A |
| | 1761-L20BWB-5A |
| | 1762-L24BWA |
| | 1764-LSP |
| AB Control/CompactLogix | 1756-L |
| | 1756-L1M1 |
| | 1756-L1M2 |
| | 1756-L1M3 |
| | 1756-L61 |
| | 1756-L62 |
| | 1756-L63 |
| | 1756-L55M12 |
| | 1756-L55M13 |
| | 1756-L55M14 |
| | 1756-L55M16 |
| | 1756-L55M22 |
| | 1756-L55M23 |
| | 1756-L55M24 |
| | 1769-L31 |
| | 1769-L32E |
| | 1769-L32C |
| | 1769-L35E |
| | 1769-L35CR |
| | 1794-L33 |
| | 1794-L34 |
| AB Control/CompactLogix (Tag) | 1756-L |
| | 1756-L1M1 |
| | 1756-L1M2 |
| | 1756-L1M3 |
| | 1756-L61 |
| | 1756-L62 |
| | 1756-L63 |
| | 1756-L55M12 |
| | 1756-L55M13 |
| | 1756-L55M14 |
| | 1756-L55M16 |
| | 1756-L55M22 |
| | 1756-L55M23 |
| | 1756-L55M24 |
| | 1769-L32E |
| | 1769-L35E |

| Type | Model name |
|---|---|
| AB Control/CompactLogix (Tag) | 1794-L33 |
| | 1794-L34 |
| GE Series 90 | IC693CPU311 |
| | IC693CPU313 |
| | IC693CPU323 |
| | IC693CPU350 |
| | IC693CPU360 |
| | IC693CPU363 |
| | IC693CPU366 |
| | IC693CPU367 |
| | IC693CPU374 |
| | IC697CPU731 |
| | IC697CPX772 |
| | IC697CPX782 |
| | IC697CPX928 |
| | IC697CPX935 |
| | IC697CPU780 |
| | IC697CGR772 |
| | IC697CGR935 |
| | IC697CPU788 |
| | IC697CPU789 |
| | IC697CPM790 |
| | IC200UAA003 |
| | IC200UAL004 |
| | IC200UAL005 |
| | IC200UAL006 |
| | IC200UAA007 |
| | IC200UAR028 |
| | IC200UDD110 |
| | IC200UDD120 |
| | IC200UDD212 |
| | IC200UDR005 |
| | IC200UDR006 |
| | IC200UDR010 |
| | IC200UDD064 |
| | IC200UDD164 |
| | IC200UDR164 |
| | IC200UDR064 |
| | IC200UAR014 |
| | IC200UDD104 |
| | IC200UDD112 |
| | IC200UDR001 |
| | IC200UDR002 |
| | IC200UDR003 |
| LS Industrial Systems MASTER-K | K7M-D□□□S(/DC) |
| | K7M-D□□□U |
| | K3P-07□S |
| | K4P-15AS |
| SICK Flexi Soft | FX3-CPU000000 |
| | FX3-CPU130002 |
| | FX3-CPU320002 |
| SIEMENS S7-300/400 Series | SIMATIC S7-300 |
| | SIMATIC S7-400 |
| SIEMENS S7-200 | SIMATIC S7-200 |

(3) Setting [I/F]

The interface differs depending on the GOT to be used.

Set the I/F according to the connection and the position of communication unit to be mounted onto the GOT.

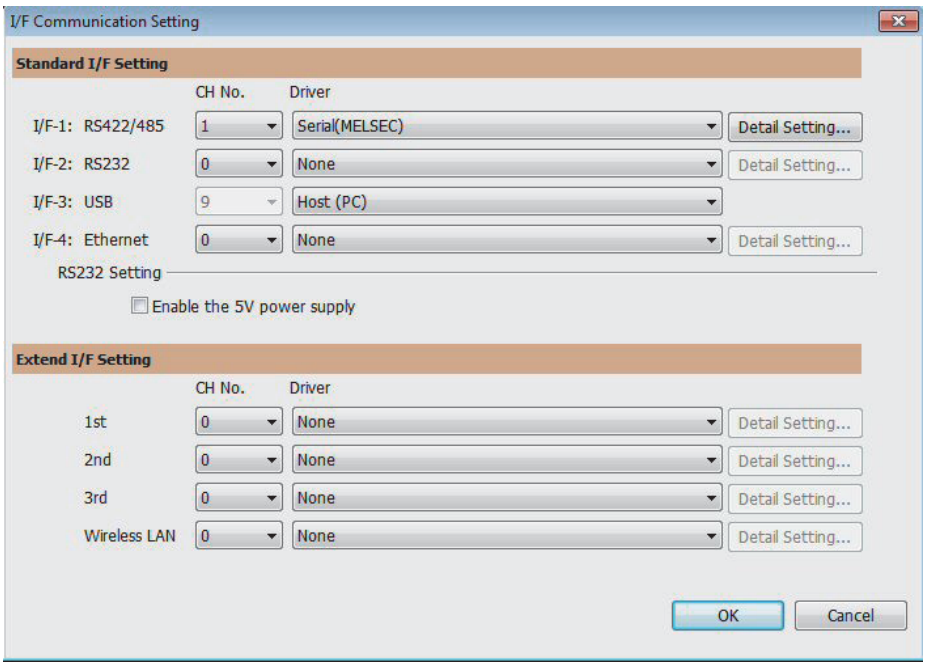



(Example: In the case of the GT27)

## 1.1.2 I/F communication setting

This function displays the list of the GOT communication interfaces.
Set the channel and the communication driver to the interface to be used.

### ■ Setting

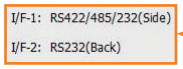


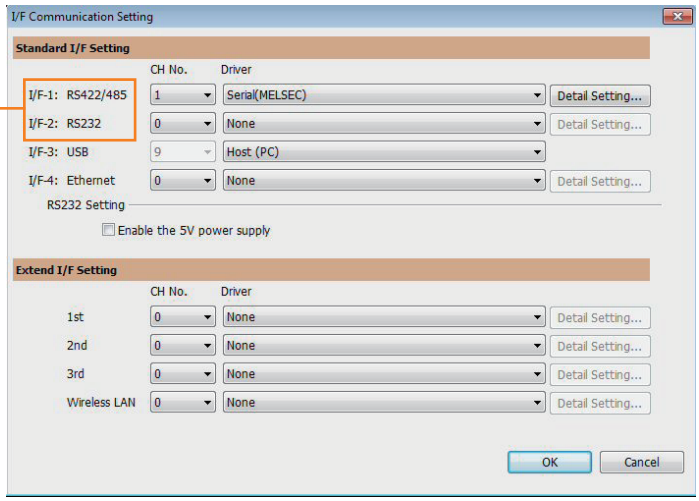

1. Select [Common] → [I/F Communication Setting] from the menu.
2. The I/F Communication Setting dialog box appears. Make the settings with reference to the following explanation.

## ■ Setting item

The following describes the setting items for the standard I/F setting and extension I/F setting.

When the GT21 series is selected in the GOT type setting




| Item | | Description |
|---|---|---|
| Standard I/F Setting | | Set channel No. and drivers to the GOT standard interfaces. |
| | CH No. | Set the CH No. according to the intended purpose.<br>0: Not used<br>1 to 4: Used for connecting a controller of channel No. 1 to 4 set in Setting connected equipment (Channel setting)<br>5 to 8: Used for barcode function, RFID function, remote personal computer operation function (serial)<br>9: Used for connecting Host (PC), Ethernet download<br>A: Used for the report function (with a serial printer), hard copy function (with a serial printer), remote personal computer operation function (Ethernet), VNC server function, gateway function, and MES interface function.<br>Multi: Used for multi-channel Ethernet connection |
| | I/F | The communication type of the GOT standard interface is displayed. |
| | Driver | Set the driver for the device to be connected.<br>・ None ・ Host (Personal computer) ・ Each communication driver for connected devices |
| | Detail Setting | Make settings for the transmission speed and data length of the communication driver.<br>☞ Refer to each chapter of the equipment to be connected to the GOT. |
| | RS232 Setting | To validate the 5V power supply function in RS232, mark the [Enable the 5V power supply] checkbox.<br>The RS232 setting is invalid when the CH No. of [I/F-1: RS232] is [9].<br>GT21 is not supported. |
| Extend I/F Setting | | Set the communication unit attached to the extension interface of the GOT.<br>GT21 is not supported. |
| | CH No. | Set the CH No. according to the intended purpose.<br>The number of channels differs depending on the GOT to be used.<br>0: Not used<br>1 to 4: Used for connecting a controller of channel No. 1 to 4 set in Setting connected equipment (Channel setting)<br>5 to 8: Used for barcode function, RFID function, remote personal computer operation (serial)<br>A: Used for the video/RGB display function, multimedia function, external I/O function, operation panel function, RGB output function, report function, hard copy function (with a printer), sound output function, gateway function, MES interface function, and wireless LAN connection. |

POINT

Channel No., drivers, [RS232 Setting]

(1) Channel No.2 to No.4
Use the channel No.2 to No.4 when using the Multi-channel function.
For details of the Multi-channel function, refer to the following.

☞ Mitsubishi Products 20. MULTI-CHANNEL FUNCTION

(2) Drivers
The displayed items for a driver differ according to the settings [Manufacturer], [Controller Type] and [I/F].
When the driver to be set is not displayed, confirm if [Manufacturer], [Controller Type] and [I/F] are correct.

☞ [Setting the communication interface] section in each chapter

## 1.1.3 Precautions

### ■ Precautions for changing model

(1) When devices that cannot be converted are included.
When setting of [Manufacturer] or [Controller Type] is changed, GT Designer3 displays the device that cannot be converted (no corresponding device type, or excessive setting ranges) as [??]. In this case, set the device again.

(2) When the changed Manufacturer or Controller Type does not correspond to the network.
The network will be set to the host station.

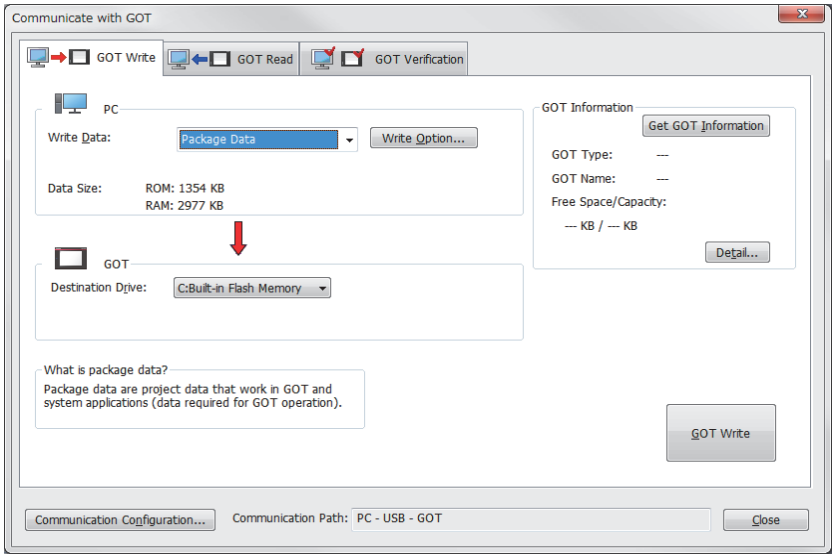
(3) When the Manufacturer or Controller Type is changed to [None]
The GT Designer3 displays the device of the changed channel No. as [??]. In this case, set the device again.
Since the channel No. is retained, the objects can be reused in other channel No. in a batch by using the [Device Bach Edit], [CH No. Batch Edit] or [Device List].

# 1.2 Writing the Project Data and OS onto the GOT

Write the standard monitor OS, communication driver, option OS, project data and communication settings onto the GOT.
For details on writing to GOT, refer to the following manual.

GT Designer3 (GOT2000) Help

## 1.2.1 Writing the project data and OS onto the GOT

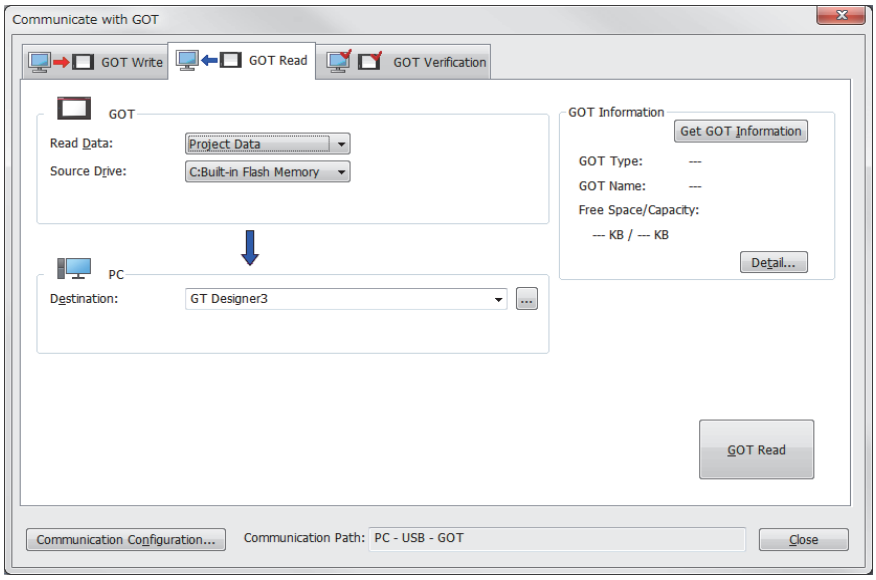



1. Select [Communication] → [Write to GOT…] from the menu.
2. The [Communication configuration] dialog box appears.
   Set the communication setting between the GOT and the personal computer.
   Click the [OK] button when settings are completed.
3. The [GOT Write] tab appears on the [Communicate with GOT] dialog box.
   Select the [Project data, OS] radio button of the Write Data.
4. Check-mark a desired standard monitor OS, communication driver, extended function OS, and Communication Settings and click the [GOT Write] button.

## 1.2.2 Checking the project data and OS writing on GOT

Confirm if the standard monitor OS, communication driver, option OS, project data and communication settings are properly written onto the GOT by reading from GOT using GT Designer3.
For reading from the GOT, refer to the following manual.

GT Designer3 (GOT2000) Help




1. Select [Communication] → [Read from GOT…] from the menu.
2. The [Communication configuration] dialog box appears.
   Set the communication setting between the GOT and the personal computer.
   Click the [OK] button when settings are completed.
3. The [GOT Read] tab appears on the [Communicate with GOT] dialog box.
   Select the [Drive information] radio button of the Read Data.
4. Click the [Info Reception] button.
5. Confirm that the project data and OS are written correctly onto the GOT.

# 1.3 Option Devices for the Respective Connection

The following shows the option devices to connect in the respective connection type.
For the specifications, usage and connecting procedure on option devices, refer to the respective device manual.

## 1.3.1 Communication module

| Product name | Model | Specifications |
|---|---|---|
| Bus connection unit | GT15-QBUS | For QCPU (Q mode), motion controller CPU (Q series)<br>Bus connection (1ch) unit standard model |
| | GT15-QBUS2 | For QCPU (Q mode), motion controller CPU (Q series)<br>Bus connection (2ch) unit standard model |
| | GT15-ABUS | For A/QnACPU, motion controller CPU (A series)<br>Bus connection (1ch) unit standard model |
| | GT15-ABUS2 | For A/QnACPU, motion controller CPU (A series)<br>Bus connection (2ch) unit standard model |
| | GT15-75QBUSL | For QCPU (Q mode), motion controller CPU (Q series)<br>Bus connection (1ch) unit slim model |
| | GT15-75QBUS2L | For QCPU (Q mode), motion controller CPU (Q series)<br>Bus connection (2ch) unit slim model |
| | GT15-75ABUSL | For A/QnACPU, motion controller CPU (A series)<br>Bus connection (1ch) unit slim model |
| | GT15-75ABUS2L | For A/QnACPU, motion controller CPU (A series)<br>Bus connection (1ch) unit slim model |
| Serial communication unit | GT15-RS2-9P | RS-232 serial communication unit (D-sub 9-pin (male)) |
| | GT15-RS4-9S | RS-422/485 serial communication unit (D-sub 9-pin (female)) |
| | GT15-RS4-TE | RS-422/485 serial communication unit (terminal block) |
| MELSECNET/H communication unit | GT15-J71LP23-25 | Optical loop unit |
| | GT15-J71BR13 | Coaxial bus unit |
| MELSECNET/10 communication unit | GT15-J71LP23-25 | Optical loop unit<br>(MELSECNET/H communication unit used in the MNET/10 mode) |
| | GT15-J71BR13 | Coaxial bus unit<br>(MELSECNET/H communication unit used in the MNET/10 mode) |
| CC-Link IE Controller Network communication unit | GT15-J71GP23-SX | Optical loop unit |
| CC-Link IE Field Network communication unit | GT15-J71GF13-T2 | CC-Link IE Field Network (1000BASE-T) unit |
| CC-Link communication unit | GT15-J61BT13 | Intelligent device station unit CC-LINK Ver. 2 compatible |
| Ethernet communication unit | Built into GOT | Ethernet (100Base-TX) |
| Wireless LAN communication unit | GT25-WLAN | • IEEE802.11b/g/n compliant, built-in antenna, station (client), connection to personal computer<br>• Compliance with<br>Japan Radio Law*1, FCC*2, R&TTE*2 |

*1 The product with hardware version A (manufactured in December 2013) complies with the regulation. The product with hardware version A can be used only in Japan.

*2 The product with hardware version B (manufactured in October 2014) complies with the regulation. The product with hardware version B or later can be used in Japan, the United States, the EU member states, Switzerland, Norway, Iceland, and Liechtenstein.

## 1.3.2 Option unit

| Product name | Model | Specifications |
|---|---|---|
| Multimedia unit | GT27-MMR-Z | For video input signal (NTSC/PAL) 1 ch, playing movie |
| Video input unit | GT27-V4-Z | For video input signal (NTSC/PAL) 4 ch |
| RGB input unit | GT27-R2<br>GT27-R2-Z | For analog RGB input signal 2 ch |
| Video/RGB input unit | GT27-V4R1-Z | For video input signal (NTSC/PAL) 4 ch, for analog RGB mixed input signal 1 ch |
| RGB output unit | GT27-ROUT<br>GT27-ROUT-Z | For analog RGB output signal 1 ch |
| Sound output unit | GT15-SOUT | For sound output |
| External I/O unit | GT15-DIOR | For the connection to external I/O device or operation panel (Negative Common Input/Source Type Output) |
| | GT15-DIO | For the connection to external I/O device or operation panel (Positive Common Input/Sink Type Output) |

## 1.3.3 Conversion cable

| Product name | Model | Specifications |
|---|---|---|
| RS-485 terminal block conversion modules | FA-LTBGT2R4CBL05 | RS-422/485 (Connector) ⟷ RS-485 (Terminal block)<br>Supplied connection cable dedicated for the conversion unit |
| | FA-LTBGT2R4CBL10 | |
| | FA-LTBGT2R4CBL20 | |

## 1.3.4 Serial multi-drop connection unit

| Product name | Model | Specifications |
|---|---|---|
| Serial multi-drop connection unit | GT01-RS4-M | GOT multi-drop connection module<br>☞ Mitsubishi Products 18. GOT MULTI-DROP CONNECTION |

## 1.3.5 Field network adapter unit

| Product name | Model | Specifications |
|---|---|---|
| Field network adapter unit | GT25-FNADP | The field network adapter unit can be used with the following field networks by using the Anybus CompactCom M40 network communication module manufactured by HMS (hereinafter referred to as the communication module).<br>Field networks:<br>• PROFIBUS DP-V1<br>• DeviceNet<br><br>How to incorporate the communication module to the field network adapter unit, and the details of the product name of the communication module, refer to the following manual.<br>☞ GOT2000 Series Field Network Adapter Unit User's Manual |

## 1.3.6 Installing a unit on another unit (Checking the unit installation position)

This section describes the precautions for installing units on another unit.
For the installation method of each unit, refer to the User's Manual for the communication unit and option unit you are using.
For the method for installing a unit on another unit, refer to the following.

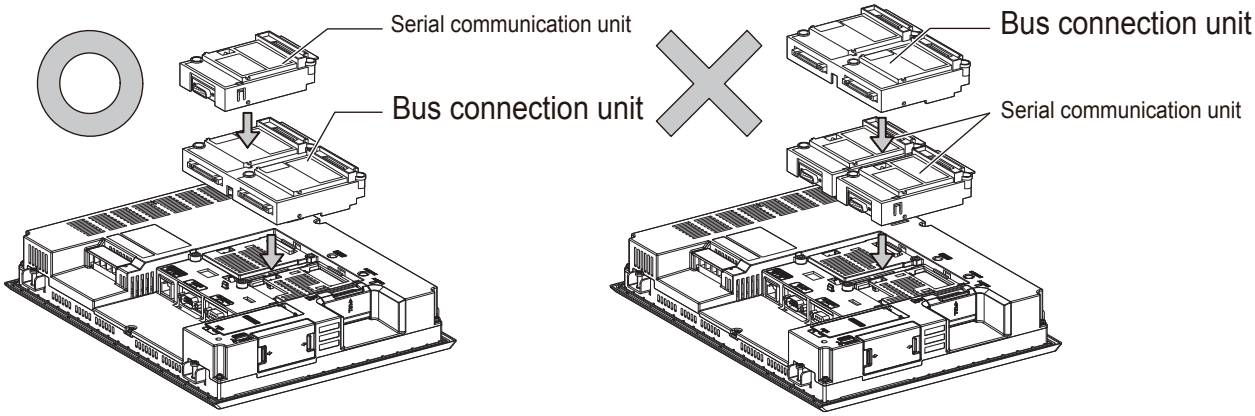
☞ User's Manual of GOT used

### ■ When using a bus connection unit

The installation position varies depending on the bus connection unit to be used.

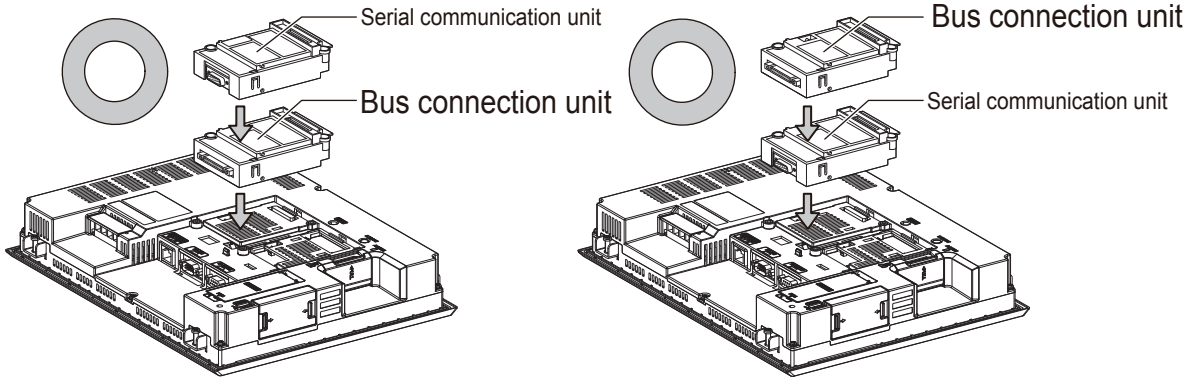
(1) Wide bus units (GT15-75QBUS(2)L, GT15-75ABUS(2)L, GT15-QBUS2, GT15-ABUS2)
Install a bus connection unit in the 1st stage of the extension interface.
If a bus connection unit is installed in the 2nd stage or above, the unit cannot be used.

Example: Installing a bus connection unit and serial communication units




(2) Standard size bus connection unit (GT15-QBUS and GT15-ABUS)
A bus connection unit can be installed in any position (1st to 3rd stage) of the extension interface.

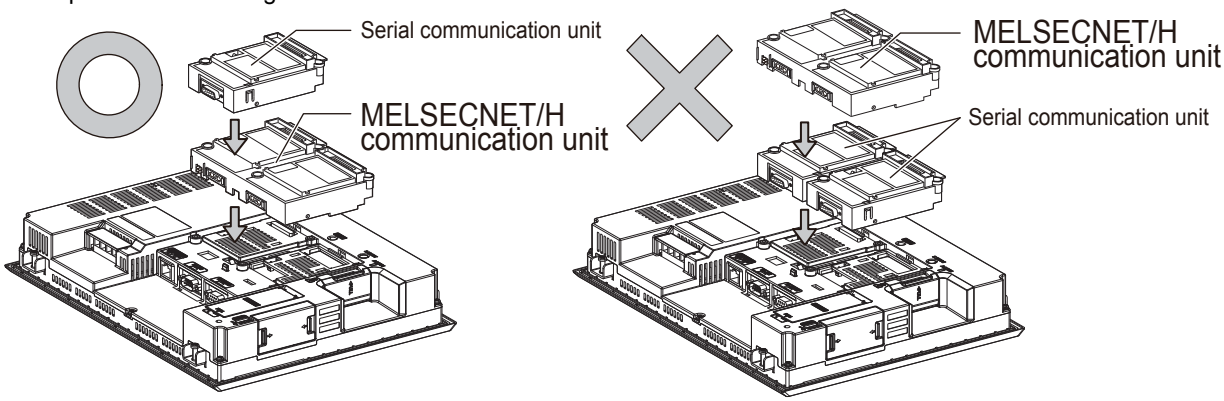
Example: Installing a bus connection unit and serial communication units



■ When using a MELSECNET/H communication unit, CC-Link IE controller network communication unit, or CC-Link communication unit (GT15-J61BT13)

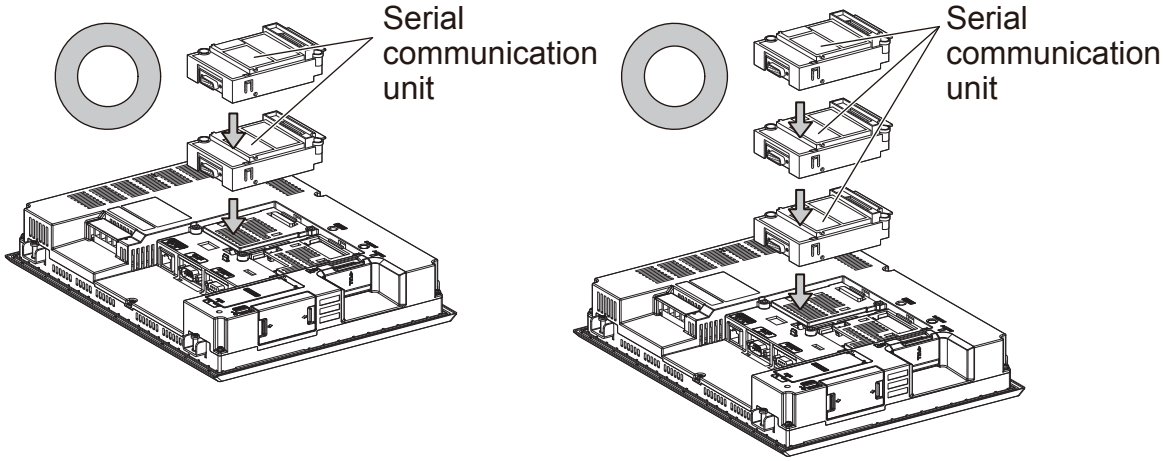
Install a MELSECNET/H communication unit, CC-Link IE controller network communication unit, or CC-Link communication unit in the 1st stage of an extension interface.
These communication units cannot be used if installed in the 2nd or higher stage.

Example: When installing a MELSECNET/H communication unit and a serial communication unit




■ When using a serial communication unit

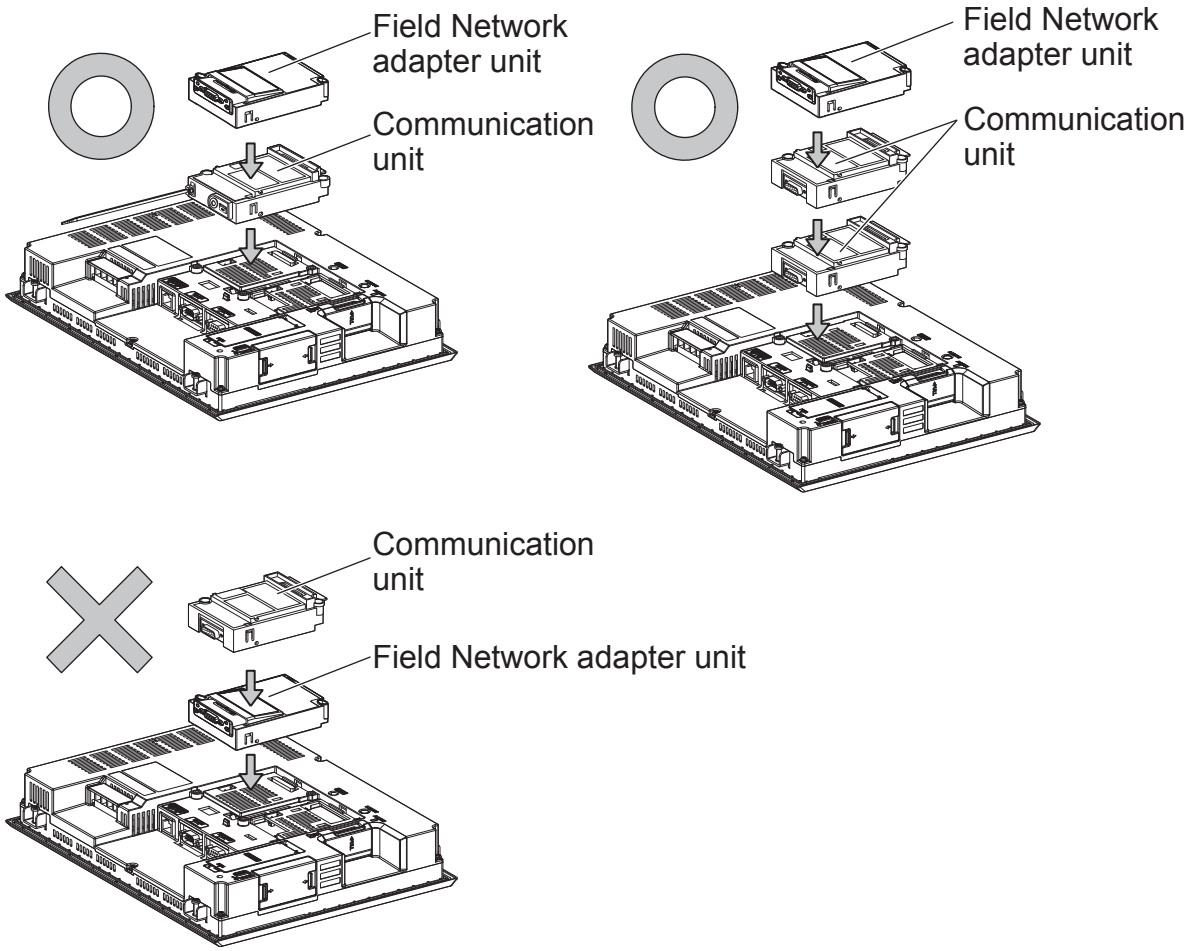
A serial communication unit can be installed in any position (1st to 3rd stage) of the extension interface.



■ When using a field network adapter unit

A field network adapter unit can be installed in any position (1st to 3rd stage) of the extension interface.
However, at the top of the field network adapter unit, you will not be able to mount the each communication unit.

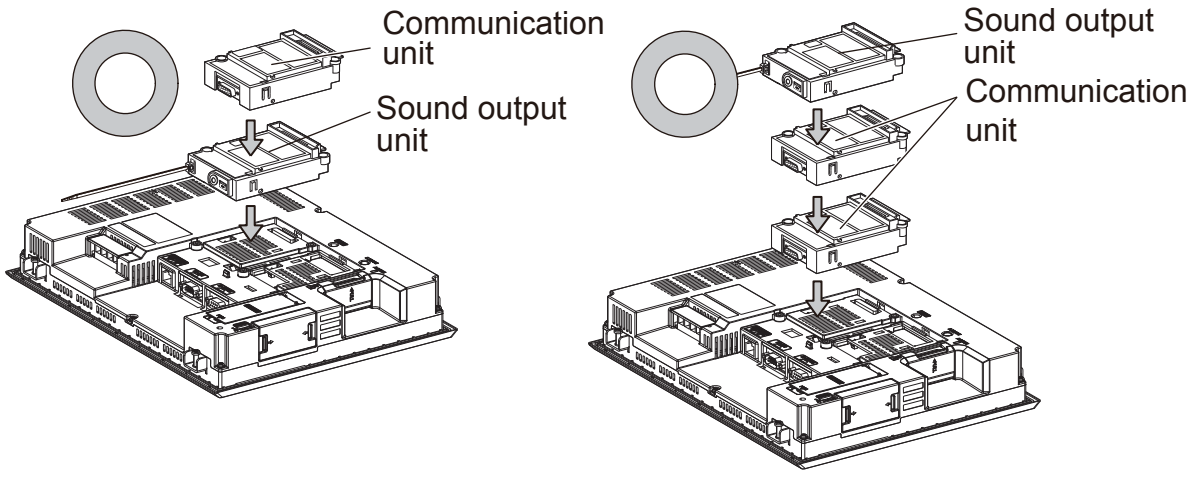
Example: Installing a field network adapter unit




■ When using the sound output unit or external I/O unit

The sound output unit or external I/O unit can be installed in any position (1st to 3rd stage) of the extension interface.

Example: When installing a sound output unit

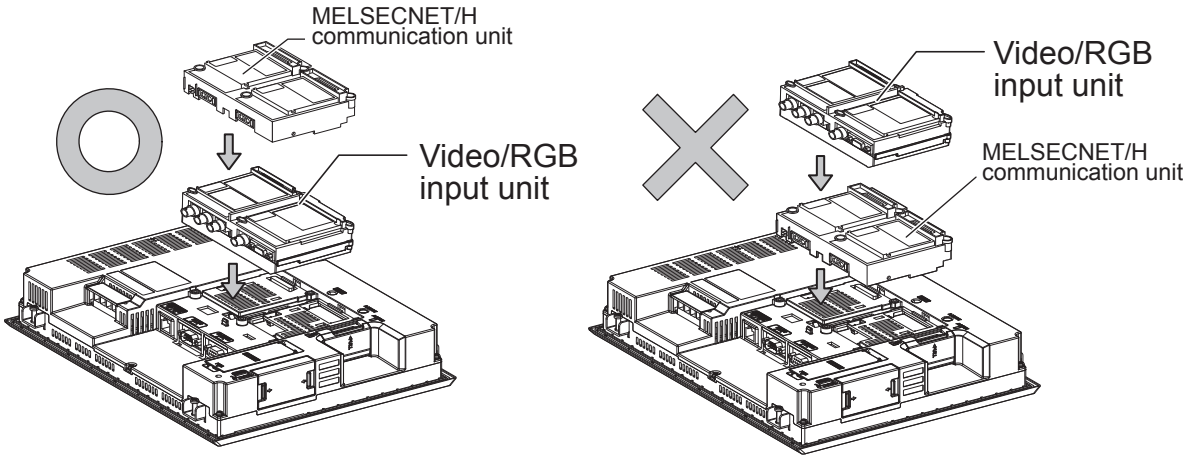


## ■ When using the video input unit, RGB input unit, video/RGB input unit, RGB output unit, or multimedia unit

Only either one of the video input unit, RGB input unit, video/RGB input unit, RGB output unit, or multimedia unit can be installed to the GOT.
Install the video input unit, RGB input unit, video/RGB input unit, RGB output unit, or multimedia unit at the 1st stage of the extension interface. These communication units cannot be used if installed in the 2nd or higher stage.
When any of these units is used, the communication units indicated below must be installed in the 2nd stage of the extension interface.

| Model | Communication unit | |
|---|---|---|
| Bus connection unit | GT15-QBUS2, | GT15-ABUS2 |
| MELSECNET/H communication unit | GT15-J71LP23-25, | GT15-J71BR13 |
| CC-Link IE controller network communication unit | GT15-J71GP23-SX | |
| CC-Link communication unit | GT15-J61BT13 | |

Example: When installing a video input unit and a MELSECNET/H communication unit



# 1.4 Connection Cables for the Respective Connection

To connect the GOT to a device in the respective connection type, connection cables between the GOT and a device are necessary.
For cables needed for each connection, refer to each chapter for connection.

## 1.4.1 GOT connector specifications

The following shows the connector specifications on the GOT side.
Refer to the following table when preparing connection cables by the user.

### ■ RS-232 interface

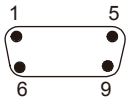
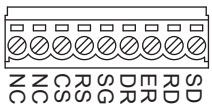
Use the following as the RS-232 interface and the RS-232 communication unit connector on the GOT. For the GOT side of the connection cable, use a connector and connector cover applicable to the GOT connector.

(1) Connector specifications

| GOT | Hardware version*1 | Connector type | Connector model | Manufacturer |
|---|---|---|---|---|
| GT27<br>GT25<br>GT23 | — | 9-pin D-sub (male)<br>inch screw fixed type | 17LE-23090-27(D4C□) | DDK Ltd. |
| GT15-RS2-9P | — | 9-pin D-sub (male)<br>inch screw fixed type | 17LE-23090-27(D3CC) | DDK Ltd. |
| GT01-RS4-M | — | | | |
| GT2104-RTBD,<br>GT2103-PMBDS2 | — | 9-pin terminal block*1 | MC1.5/9-G-3.5BK | PHOENIX CONTACT Inc |

*1 The terminal block (MC1.5/9-ST-3.5 or corresponding product) of the cable side is packed together with the GT2104-RTBD, GT2103-PMBDS2.

(2) Connector pin arrangement

| GT27, GT25, GT23, GT15-RS2-9P, GT01-RS4-M | GT2104-RTBD, GT2103-PMBDS2 |
|---|---|
| GOT main part connector<br>see from the front | See from the back of a<br>GOT main part |
|  |  |
| 9-pin D-sub (male) | 9-pin terminal block |

### ■ RS-422/485 interface

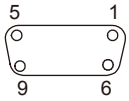
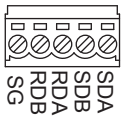
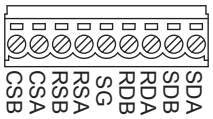
Use the following as the RS-422/485 interface and the RS-422/485 communication unit connector on the GOT.
For the GOT side of the connection cable, use a connector and connector cover applicable to the GOT connector.

(1) Connector model

| GOT | Connector type | Connector model | Manufacturer |
|---|---|---|---|
| GT27<br>GT25<br>GT23 | 9-pin D-Sub (female)<br>M2.6 millimeter screw fixed type | 17LE-13090-27(D2AC) | DDK Ltd. |
| GT2103-PMBD | 5-pin terminal block*1 | MC1.5/5-G-3.5BK | PHOENIX CONTACT Inc |
| GT2104-RTBD,<br>GT2103-PMBDS,<br>GT2103-PMBLS | 9-pin terminal block*2 | MC1.5/9-G-3.5BK | PHOENIX CONTACT Inc |
| GT15-RS4-9S | 9-pin D-Sub (female)<br>M2.6 millimeter screw fixed type | 17LE-13090-27(D3AC) | DDK Ltd. |
| GT01-RS4-M | | | |
| GT15-RS4-TE | — | — | SL-SMT3.5/10/90F BOX |

*1 The terminal block (MC1.5/5-ST-3.5 or corresponding product) of the cable side is packed together with the GT2103-PMBD.
*2 The terminal block (MC1.5/9-ST-3.5 or corresponding product) of the cable side is packed together with the GT2104-RTBD, GT2103-PMBDS, GT2103-PMBLS.

(2) Connector pin arrangement

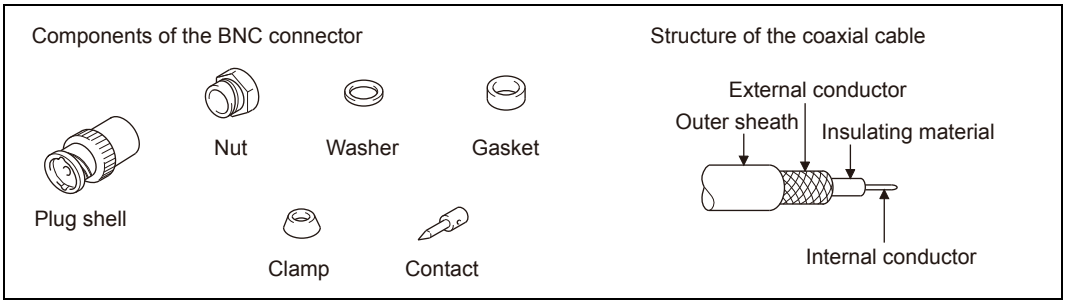
| GT27, GT25, GT23, GT01-RS4-M | GT2103-PMBD | GT2104-RTBD,<br>GT2103-PMBDS,<br>GT2103-PMBLS |
|---|---|---|
| GOT main part connector<br>see from the front<br>  <br><br>9-pin D-sub (female) | See from the back of a<br>GOT main part<br>  <br><br>5-pin terminal block | See from the back of a<br>GOT main part<br>  <br><br>9-pin terminal block |

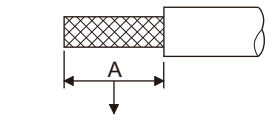
## 1.4.2 Coaxial cableconnector connection method

The following describes the method for connecting the BNC connector (connector plug for coaxial cable) and the cable.

**⚠CAUTION**

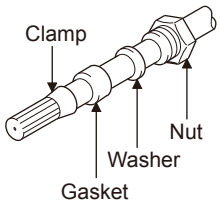
- Solder the coaxial cable connectors properly.
  Insufficient soldering may result in malfunctions.



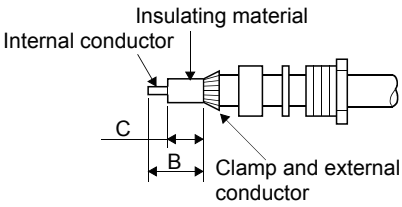




1. Remove the external sheath of the coaxial cable with dimensions as shown below.

| Cable in use | A |
|---|---|
| 3C-2V | 15 mm |
| 5C-2V, 5C-2V-CCY | 10 mm |

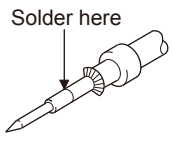



2. Pass the nut, washer, gasket, and clamp through the coaxial cable as shown on the left and loosen the external conductor.

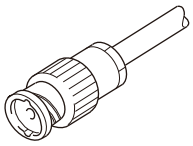



3. Cut the external conductor, insulting material, and internal conductor with the dimensions as shown below.
   Note that the external conductor should be cut to the same dimension as the tapered section of the clamp and smoothed down to the clamp.

| Cable in use | B | C |
|---|---|---|
| 3C-2V | 6 mm | 3 mm |
| 5C-2V, 5C-2V-CCY | 7 mm | 5 mm |




4. Solder the contact to the internal conductor.



5. Insert the connector assembly shown in 4. into the plug shell and screw the nut into the plug shell.

Precautions for soldering

Note the following precautions when soldering the internal conductor and contact.

- Make sure that the solder does not bead up at the soldered section.
- Make sure there are no gaps between the connector and cable insulator or they do not cut into each other.
- Perform soldering quickly so the insulation material does not become deformed.

## 1.4.3 Terminating resistors of GOT

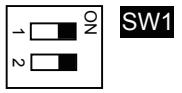
The following shows the terminating resistor specifications on the GOT side.
When setting the terminating resistor in each connection type, refer to the following.

### ■ RS-422/485 communication unit

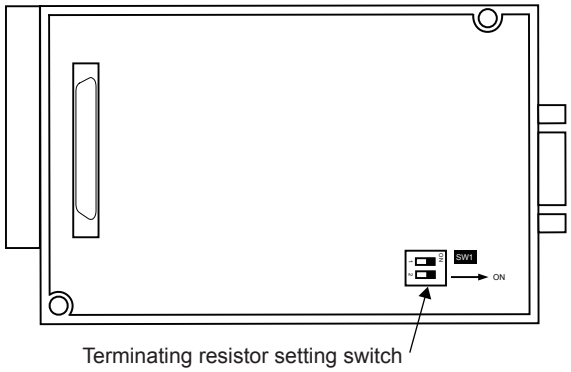
Set the terminating resistor using the terminating resistor setting switch.

| Terminating resistor*1 | Switch No. | |
|---|---|---|
| | 1 | 2 |
| 100 OHM | ON | ON |
| Disable | OFF | OFF |

*1 The default setting is "Disable".




• For RS422/485 communication unit



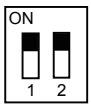

Rear view of RS-422/485 communication unit.

### ■ GT27

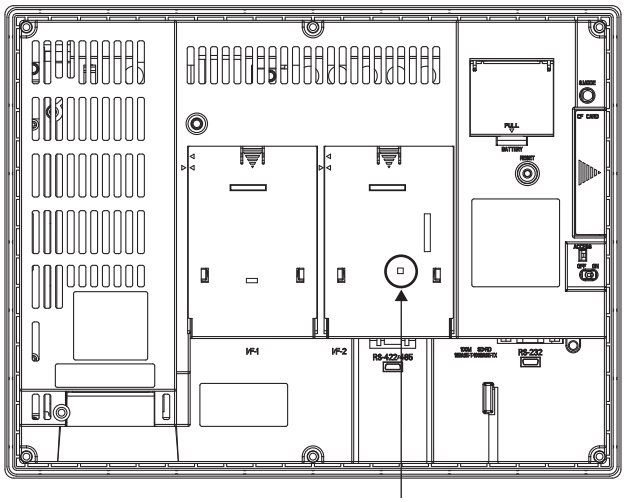
Set the terminating resistor using the terminating resistor setting switch.

| Terminating resistor*1 | Switch No. | |
|---|---|---|
| | 1 | 2 |
| 100 OHM | ON | ON |
| Disable | OFF | OFF |

*1 The default setting is "Disable".




• For GT2710-V

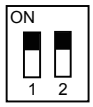



### ■ GT25

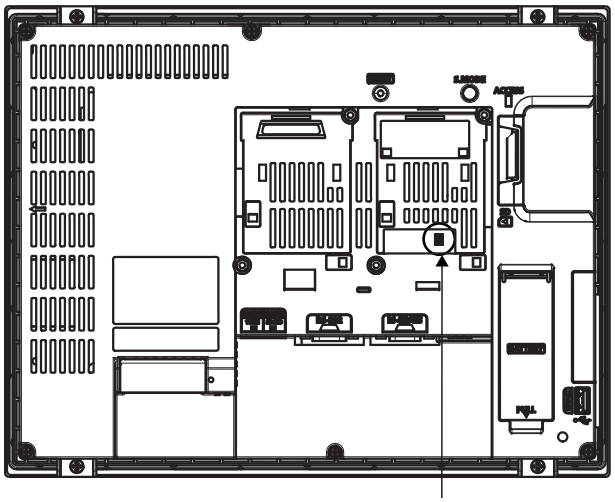
Set the terminating resistor using the terminating resistor setting switch.

| Terminating resistor*1 | Switch No. | |
|---|---|---|
| | 1 | 2 |
| 100 OHM | ON | ON |
| Disable | OFF | OFF |

*1 The default setting is "Disable".




• For GT2510-V

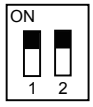



### ■ GT23

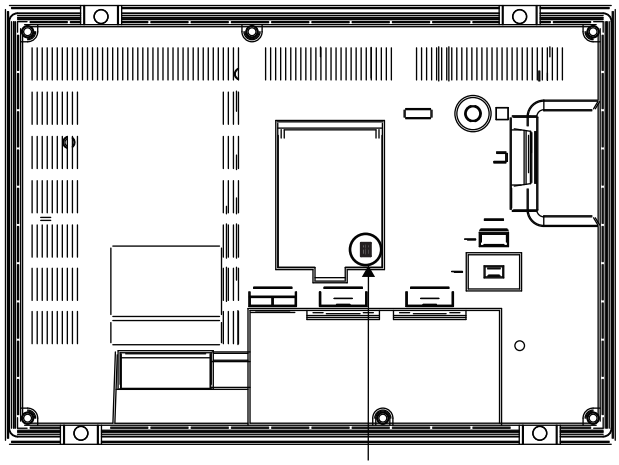
Set the terminating resistor using the terminating resistor setting switch.

| Terminating resistor*1 | Switch No. | |
|---|---|---|
| | 1 | 2 |
| 100 OHM | ON | ON |
| Disable | OFF | OFF |

*1 The default setting is "Disable".



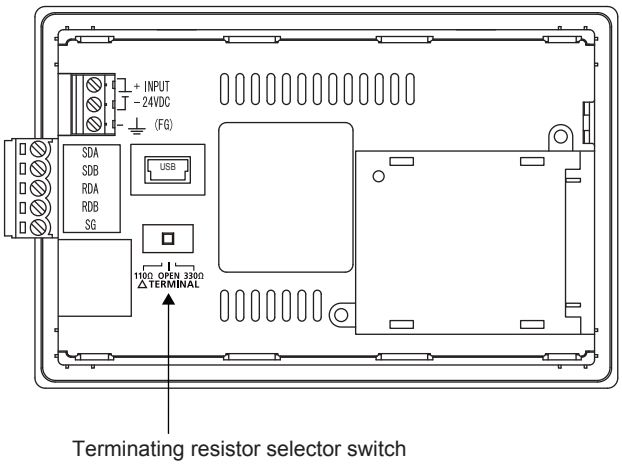

• For GT2310-V



## ■ GT21

Set the terminating resistor using the terminating resistor setting switch.

• For GT2103-PMBD




Terminating resistor selector switch

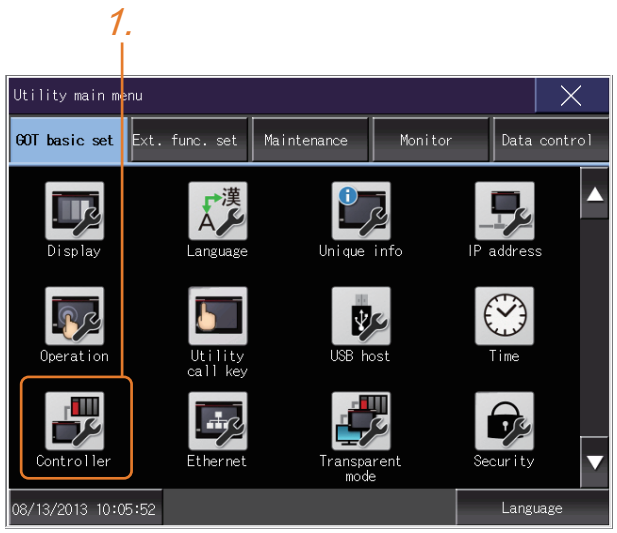
# 1.5 Verifying GOT Recognizes Connected Equipment

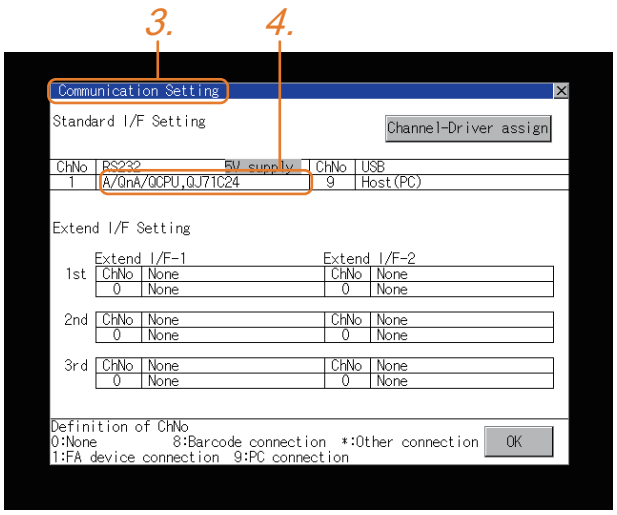
Verify the GOT recognizes controllers on [Communication Settings] of the Utility.

- Channel number of communication interface, communication drivers allocation status
- Communication unit installation status

For details on the Utility, refer to the following manual.

GOT2000 Series User's Manual (Utility)




1. After powering up the GOT, touch [GOT basic set] → [Controller] from the Utility.

2. The [Communication Settings] appears.

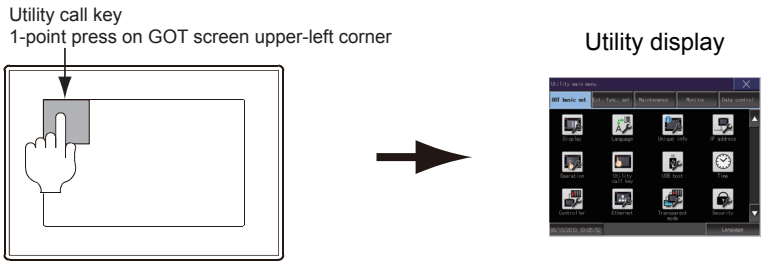
3. Verify that the communication driver name to be used is displayed in the communication interface box to be used.

4. When the communication driver name is not displayed normally, carry out the following procedure again.
1.1Setting the Communication Interface

## POINT

Utility

(1) How to display Utility (at default)




(2) Utility call

When setting [Pressing time] to other than 0 second on the setting screen of the utility call key, press and hold the utility call key until the buzzer sounds. For the setting of the utility call key, refer to the following.

GOT2000 Series User's Manual (Utility)

(3) Communication interface setting by the Utility

The communication interface setting can be changed on the Utility's [Communication setting] after writing [Communication Settings] of project data.

For details on the Utility, refer to the following manual.

GOT2000 Series User's Manual (Utility)

(4) Precedence in communication settings

When settings are made by GT Designer3 or the Utility, the latest setting is effective.

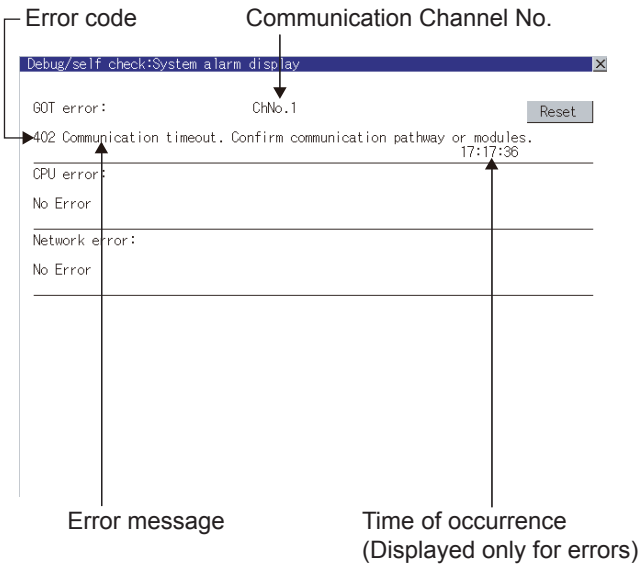
# 1.6 Checking for Normal Monitoring

## 1.6.1 Check on the GOT

### ■ Check for errors occurring on the GOT

Presetting the system alarm to project data allows you to identify errors occurred on the GOT, PLC CPU, servo amplifier and communications.
For details on the operation method of the GOT Utility screen, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)




**HINT**

Advanced alarm popup display

With the advanced alarm popup display function, alarms are displayed as a popup display regardless of whether an alarm display object is placed on the screen or not (regardless of the display screen).
Since comments can be flown from right to left, even a long comment can be displayed all.
For details of the advanced popup display, refer to the following manual.

☞ GT Designer3 (GOT2000) Help

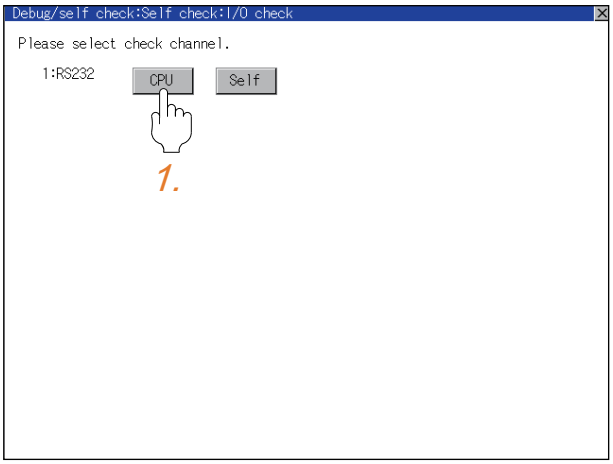
## ■ Perform an I/O check

Whether the PLC can communicate with the GOT or not can be checked by the I/O check function.
If this check ends successfully, it means correct communication interface settings and proper cable connection.
Display the I/O check screen by Main Menu.

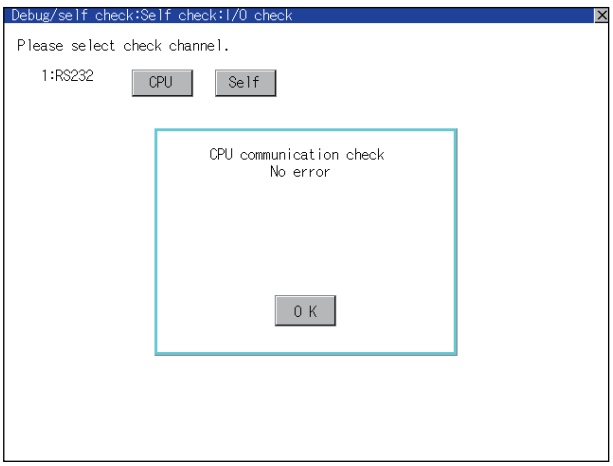
- For GT16
  Display the I/O check screen by [Main menu] → [Self check] → [I/O check].
- For GT15, GT14, GT11
  Display the I/O check screen by [Main menu] → [Debug & self check] → [Self check] → [I/O check].

For details on the I/O check, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)




1. Touch [CPU] on the I/O check screen.
   Touching [CPU] executes the communication check with the connected PLC.



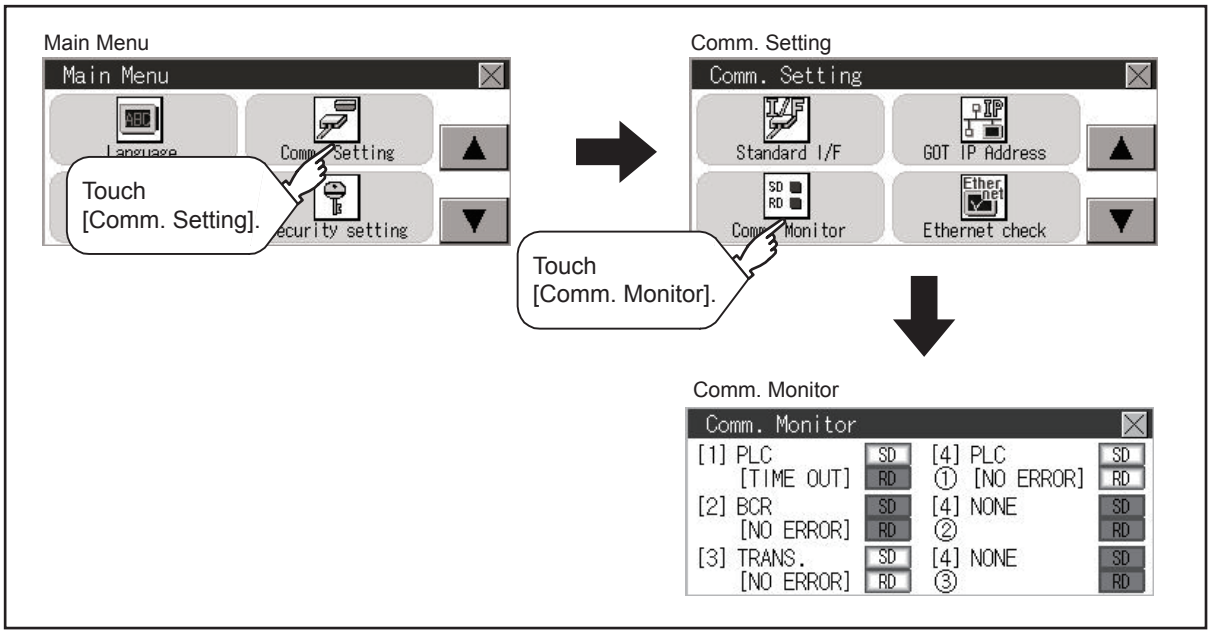

2. When the communication screen ends successfully, the screen on the left is displayed.

## ■ Communication monitoring function

The communication monitoring is a function that checks whether the PLC can communicate with the GOT.
If this check ends successfully, it means correct communication interface settings and proper cable connection.
Display the communication monitoring function screen by [Main Menu] → [Comm. Setting] → [Comm. Monitor].
For details on the communication monitoring function, refer to the following manual:

☞ GOT2000 Series User's Manual (Utility)

(Operation of communication monitoring function screen)



## 1.6.2 Confirming the communication state on the GOT side (For Ethernet connection)

### ■ Confirming the communication state on Windows®, GT Designer3

(1) When using the Command Prompt of Windows®

Execute a Ping command at the Command Prompt of Windows®.

(a) When normal communication

C:\>Ping 192.168.3.18

Reply from 192.168.3.18: bytes=32 time<1ms TTL=64

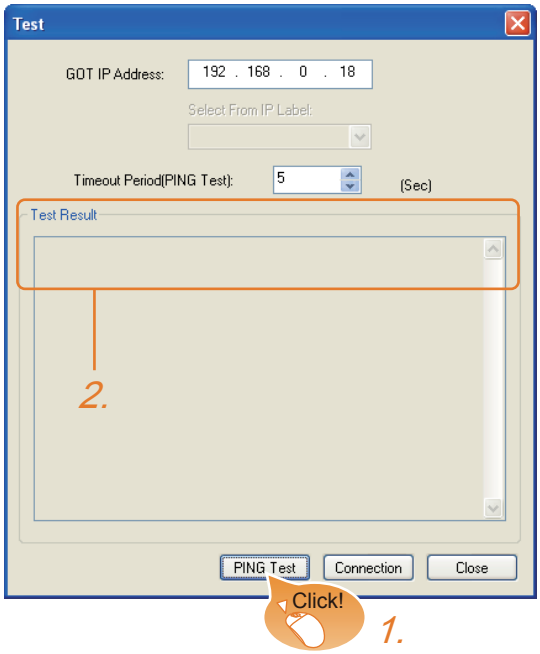
(b) When abnormal communication

C:\>Ping 192.168.3.18

Request timed out.

(2) When using the [PING Test] of GT Designer3

Select [Communication] → [Communication configuration] → [Ethernet] and → [Connection Test] to display [PING Test].




1. Specify the [GOT IP Address] of the [PING Test] and click the [PING Test] button.
2. The [Test Result] is displayed after the [PING Test] is finished.

(3) When abnormal communication

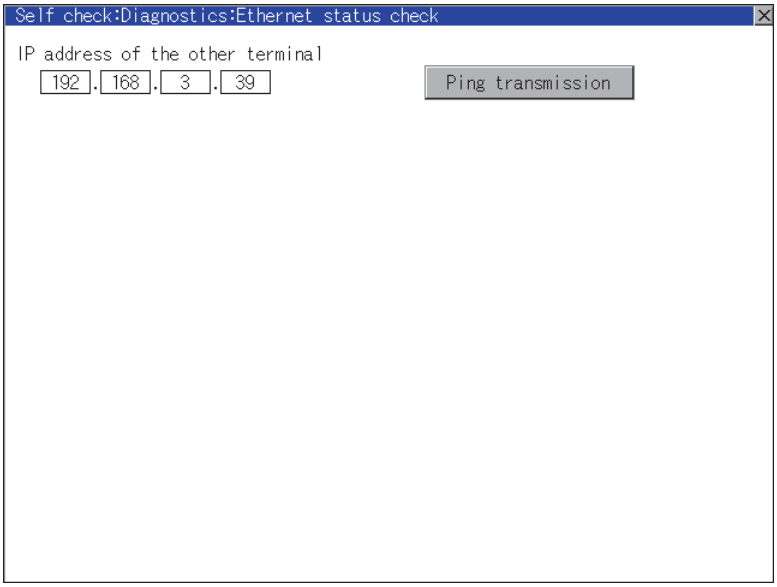
At abnormal communication, check the followings and execute the Ping command again.

- Mounting condition of Ethernet communication unit
- Cable connecting condition
- Confirmation of [Communication Settings]
- IP address of GOT specified by Ping command

## ■ Confirming the communication state on the GOT

[PING Test] can be confirmed by the Utility screen of the GOT.
For details on the operation method of the GOT Utility screen, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)



## 1.6.3 Confirming the communication state to each station (Station monitoring function)

The station monitoring function detects the faults (communication timeout) of the stations monitored by the GOT. When an abnormal state is detected, the function assigns the information of the faulty station to the GOT special register (GS).

(1) No. of faulty stations

(a) For the Ethernet connection (except for the Ethernet multiple connection)

Total No. of the faulty CPU are stored.

| Device | b15 to b8 | b7 to b0 |
|---|---|---|
| GS230 | (00H fixed) | No. of faulty stations |

(b) For Ethernet multiple connection

The total No. of the faulty devices is stored.

| Channel | Device | b15 to b8 | b7 to b0 |
|---|---|---|---|
| Ch1 | GS280 | (00H fixed) | No. of faulty stations |
| Ch2 | GS300 | (00H fixed) | No. of faulty stations |
| Ch3 | GS320 | (00H fixed) | No. of faulty stations |
| Ch4 | GS340 | (00H fixed) | No. of faulty stations |

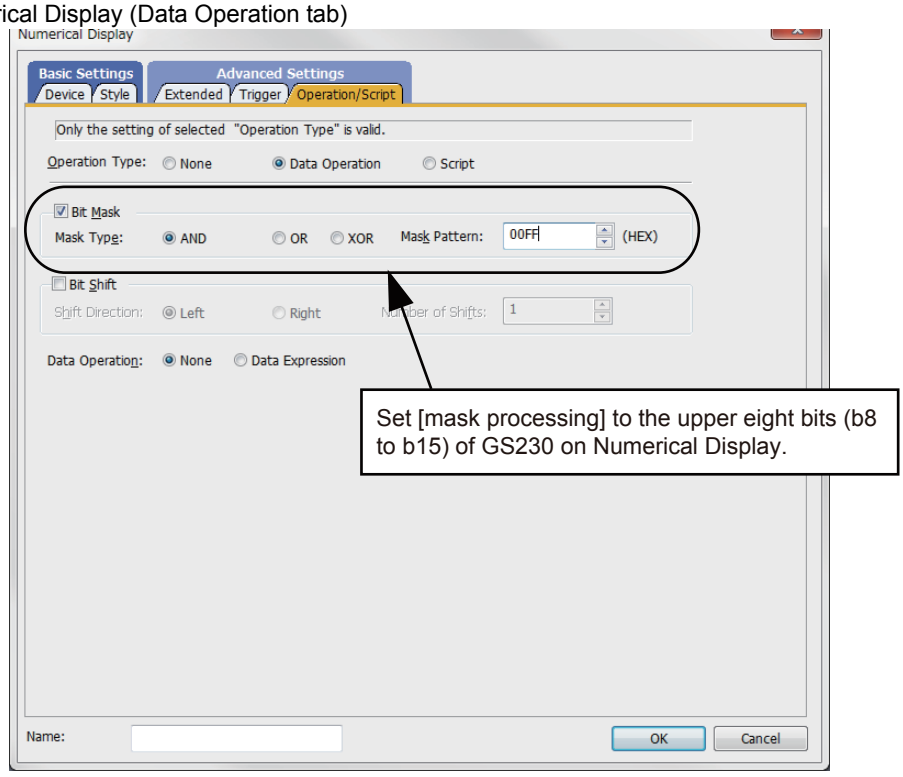
**POINT**

When monitoring GS230 on Numerical Display

When monitoring GS230 on Numerical Display, check [mask processing] with data operation tab as the following. For the data operation, refer to the following manual.

GT Designer3 (GOT2000) Help

●Numerical Display (Data Operation tab)

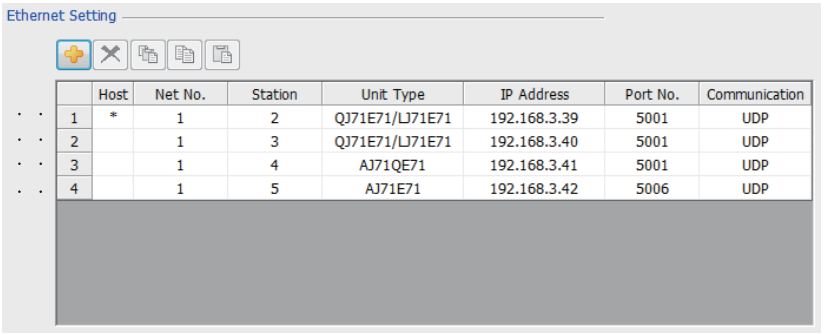


(2) Faulty station information

The bit corresponding to the faulty station is set. (0: Normal, 1: Abnormal)
The bit is reset after the fault is recovered.

(a) For the Ethernet connection (except for the Ethernet multiple connection)

GS231 bit 0 · · ·
GS231 bit 1 · · ·
GS231 bit 2 · · ·
GS231 bit 3 · · ·




| Device | Ethernet setting No. | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | b15 | b14 | b13 | b12 | b11 | b10 | b9 | b8 | b7 | b6 | b5 | b4 | b3 | b2 | b1 | b0 |
| GS231 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| GS232 | 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 |
| GS233 | 48 | 47 | 46 | 45 | 44 | 43 | 42 | 41 | 40 | 39 | 38 | 37 | 36 | 35 | 34 | 33 |
| GS234 | 64 | 63 | 62 | 61 | 60 | 59 | 58 | 57 | 56 | 55 | 54 | 53 | 52 | 51 | 50 | 49 |
| GS235 | 80 | 79 | 78 | 77 | 76 | 75 | 74 | 73 | 72 | 71 | 70 | 69 | 68 | 67 | 66 | 65 |
| GS236 | 96 | 95 | 94 | 93 | 92 | 91 | 90 | 89 | 88 | 87 | 86 | 85 | 84 | 83 | 82 | 81 |
| GS237 | 112 | 111 | 110 | 109 | 108 | 107 | 106 | 105 | 104 | 103 | 102 | 101 | 100 | 99 | 98 | 97 |
| GS238 | 128 | 127 | 126 | 125 | 124 | 123 | 122 | 121 | 120 | 119 | 118 | 117 | 116 | 115 | 114 | 113 |

(b) For the Ethernet multiple connection or the temperature controller connection

The station number to which each device corresponds changes according to the connection/non connection with Ethernet.
With Ethernet connection: 1 to 128
With other than Ethernet connection: 0 to 127
Example) With Ethernet connection, when PC No. 100 CPU connecting to Ch3 is faulty, GS327.b3 is set.
The following table shows the case with Ethernet connection.

| Device | | | | Station No. | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ch1 | Ch2 | Ch3 | Ch4 | b15 | b14 | b13 | b12 | b11 | b10 | b9 | b8 | b7 | b6 | b5 | b4 | b3 | b2 | b1 | b0 |
| GS281 | GS301 | GS321 | GS341 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| GS282 | GS302 | GS322 | GS342 | 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 |
| GS283 | GS303 | GS323 | GS343 | 48 | 47 | 46 | 45 | 44 | 43 | 42 | 41 | 40 | 39 | 38 | 37 | 36 | 35 | 34 | 33 |
| GS284 | GS304 | GS324 | GS344 | 64 | 63 | 62 | 61 | 60 | 59 | 58 | 57 | 56 | 55 | 54 | 53 | 52 | 51 | 50 | 49 |
| GS285 | GS305 | GS325 | GS345 | 80 | 79 | 78 | 77 | 76 | 75 | 74 | 73 | 72 | 71 | 70 | 69 | 68 | 67 | 66 | 65 |
| GS286 | GS306 | GS326 | GS346 | 96 | 95 | 94 | 93 | 92 | 91 | 90 | 89 | 88 | 87 | 86 | 85 | 84 | 83 | 82 | 81 |
| GS287 | GS307 | GS327 | GS347 | 112 | 111 | 110 | 109 | 108 | 107 | 106 | 105 | 104 | 103 | 102 | 101 | 100 | 99 | 98 | 97 |
| GS288 | GS308 | GS328 | GS348 | 128 | 127 | 126 | 125 | 124 | 123 | 122 | 121 | 120 | 119 | 118 | 117 | 116 | 115 | 114 | 113 |

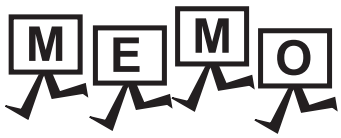
For details on the GS Device, refer to the following manual.

☞ GT Designer3 Screen Design Manual (Fundamentals) Appendix.2.3 GOT special register (GS)

(3) Network No., station No. notification

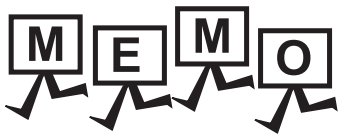
The network No. and station No. of the GOT in Ethernet connection are stored at GOT startup.
If connected by other than Ethernet, 0 is stored.

| Device | | | | Description |
|---|---|---|---|---|
| CH1 | CH2 | CH3 | CH4 | |
| GS376 | GS378 | GS380 | GS382 | Network No. (1 to 239) |
| GS377 | GS379 | GS381 | GS383 | Station No. (1 to 64) |


MEMO

# CONNECTIONS TO NON-MITSUBISHI PRODUCTS


2. CONNECTION TO HITACHI IES PLC . . . . . 2 - 1
3. CONNECTION TO HITACHI PLC . . . . . 3 - 1
4. CONNECTION TO FUJI PLC. . . . . 4 - 1
5. CONNECTION TO FUJI TEMPERATURE CONTROLLER . . . . . 5 - 1
6. CONNECTION TO YASKAWA PLC. . . . . 6 - 1
7. CONNECTION TO YOKOGAWA PLC . . . . . 7 - 1
8. CONNECTION TO YOKOGAWA TEMPERATURE CONTROLLER. . . . . 8 - 1
9. CONNECTION TO RKC TEMPERATURE CONTROLLER . . . . . 9 - 1
10. CONNECTION TO ALLEN-BRADLEY PLC. . . . . 10 - 1
11. CONNECTION TO GE PLC . . . . . .11 - 1
12. CONNECTION TO LS INDUSTRIAL SYSTEMS PLC . . . . 12 - 1
13. CONNECTION TO MITSUBISHI INDIA PLC . . . . . 13 - 1
14. CONNECTION TO SICK SAFETY CONTROLLER . . . . . 14 - 1
15. CONNECTION TO SIEMENS PLC . . . . . 15 - 1


MEMO

# 2

# CONNECTION TO HITACHI IES PLC


2.1 Connectable Model List . . . . . 2 - 2
2.2 System Configuration . . . . . 2 - 3
2.3 Connection Diagram . . . . . 2 - 7
2.4 GOT Side Settings . . . . . 2 - 9
2.5 PLC Side Setting . . . . . 2 - 11
2.6 Device Range that Can Be Set . . . . . 2 - 12

# 2. CONNECTION TO HITACHI IES PLC

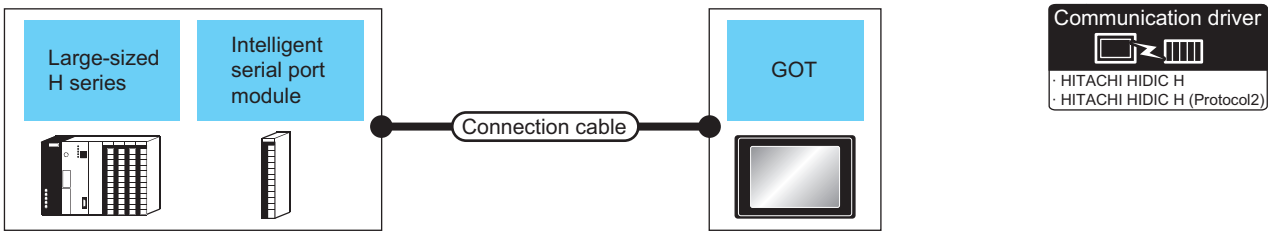
## 2.1 Connectable Model List

The following table shows the connectable models.

| Series | Model name | Clock | Communication Type | Connectable model | Refer to |
|---|---|---|---|---|---|
| Large-sized H Series | H-302 | ○ | RS-232<br>RS-422 | GT27 GT25 GT23 | 2.2.1 |
| | H-702 | | | | |
| | H-1002 | | | | |
| | H-2002 | | | | |
| | H-4010 | | | | |
| | H-300 | × | | | |
| | H-700 | | | | |
| | H-2000 | | | | |
| H-200 to 252 Series | H-200 | ○ | RS-232 | GT27 GT25 GT23 | 2.2.2 |
| | H-250 | | | | |
| | H-252 | | | | |
| | H-252B | | | | |
| | H-252C | | | | |
| H Series board type | H-20DR | ○ | RS-232 | GT27 GT25 GT23 | 2.2.2 |
| | H-28DR | | | | |
| | H-40DR | | | | |
| | H-64DR | | | | |
| | H-20DT | | | | |
| | H-28DT | | | | |
| | H-40DT | | | | |
| | H-64DT | | | | |
| | HL-40DR | | | | |
| | HL-64DR | | | | |
| EH-150 series | EH-CPU104 | × | RS-232 | GT27 GT25 GT23 | 2.2.2 |
| | EH-CPU208 | ○ | | | |
| | EH-CPU308 | | | | |
| | EH-CPU316 | | | | |
| | EH-CPU516 | | | | |
| | EH-CPU548 | | | | |

# 2.2 System Configuration

## 2.2.1 Connection to large-sized H series




To use "transmission control procedure 2" as a protocol, select "HITACHI HIDIC H (Protocol2)" as a communication driver.

| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | Intelligent serial port module*1 | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| H-302*2<br>H-702*2<br>H-1002*2<br>H-2002*2<br>H-300<br>H-700<br>H-2000 | - | RS-232 | GT09-C30R20401-15P(3m)<br>or<br>User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 PLC |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| H-4010 | - | RS-232 | • Specified transmission speed: 4800bps<br>GT09-C30R20401-15P(3m)<br>or User preparing RS-232 connection diagram 1)<br>• Specified transmission speed: 19200bps<br>GT09-C30R20402-15P(3m)<br>or User preparing RS-232 connection diagram 2)<br>• Specified transmission speed: 38400bps*3<br>GT09-C30R20402-15P(3m)<br>or User preparing RS-232 connection diagram 2)<br>• Transmission speed other than the above<br>GT09-C30R20401-15P(3m)<br>or User preparing RS-232 connection diagram 1)<br>GT09-C30R20402-15P(3m)<br>or User preparing RS-232 connection diagram 2) | 15m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | GT15-RS2-9P | GT27 GT25 | |

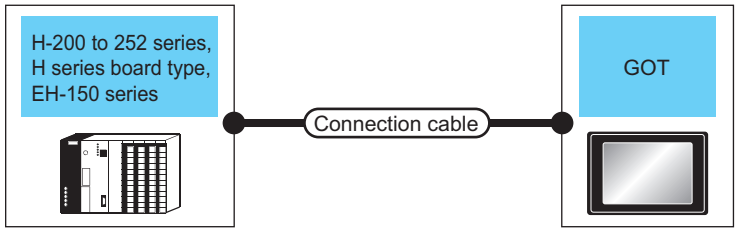
| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | Intelligent serial port module*1 | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| H-302<br>H-702<br>H-1002<br>H-2002<br>H-4010<br>H-300<br>H-700<br>H-2000 | COMM-H<br>COMM-2H | RS-232 | GT09-C30R20401-15P(3m)<br>or<br>User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 intelligent serial port module |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | | RS-422 | GT09-C30R40401-7T(3m)<br>GT09-C100R40401-7T(10m)<br>GT09-C200R40401-7T(20m)<br>GT09-C300R40401-7T(30m)<br>or<br>User preparing RS-422 connection diagram 1) | 200m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | GT15-RS4-9S | GT27 GT25 | |

*1 Product manufactured by HITACHI Industrial Equipment Systems Co., Ltd. For details of this product, contact HITACHI Industrial Equipment Systems Co., Ltd.

*2 Connect to the peripheral port of the CPU module.

*3 Can be specified with the CPU software of revision "J" or later.

## 2.2.2 Connecting to H-200 to 252 series, H series board type or EH-150 series




To use "transmission control procedure 2" as a protocol, select "HITACHI HIDIC H (Protocol2)" as a communication driver.

| PLC | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Model name | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| H-200*1, H-250*1<br>H-252*1, H-252B*1<br>H-20DR, H-28DR<br>H-40DR, H-64DR<br>H-20DT, H-28DT<br>H-40DT, H-64DT<br>HL-40DR, HL-64DR | RS-232 | GT09-C30R20401-15P(3m)<br>or<br>User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 PLC |
| | | | | GT15-RS2-9P | GT27 GT25 | |
| H-252C*1*2 | RS-232 | • Specified transmission speed: 4800bps<br>GT09-C30R20401-15P(3m)<br>or User preparing RS-232 connection diagram 1)<br>• Specified transmission speed: 19200bps<br>GT09-C30R20402-15P(3m)<br>or User preparing RS-232 connection diagram 2)<br>• Transmission speed other than the above<br>GT09-C30R20401-15P(3m)<br>or User preparing RS-232 connection diagram 1)<br>GT09-C30R20402-15P(3m)<br>or User preparing RS-232 connection diagram 2) | 15m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | GT15-RS2-9P | GT27 GT25 | |
| EH-CPU104*3<br>EH-CPU208*3<br>EH-CPU308*3<br>EH-CPU316*3<br>EH-CPU516*3<br>EH-CPU548*3 | RS-232 | • Specified transmission speed: 4800bps<br>GT09-C30R20401-15P(3m)<br>or User preparing RS-232 connection diagram 1)<br>• Specified transmission speed: 19200bps<br>GT09-C30R20402-15P(3m)<br>or User preparing RS-232 connection diagram 2)<br>• Specified transmission speed: 38400bps<br>GT09-C30R20402-15P(3m)<br>or User preparing RS-232 connection diagram 2)<br>• Transmission speed other than the above<br>GT09-C30R20401-15P(3m)<br>or User preparing RS-232 connection diagram 1)<br>GT09-C30R20402-15P(3m)<br>or User preparing RS-232 connection diagram 2) | 15m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | GT15-RS2-9P | GT27 GT25 | |

*1 To connect to H-200 to 252 series, connect to the peripheral port of the CPU module.

*2 To connect to serial port 2 of H-252C (CPU22-02HC, CPE22-02HC), the round connector (8 pins)/D-sub connector (15 pins) conversion cable (CNCOM-05 made by HITACHI Industrial Equipment Systems Co., Ltd.) is necessary.

*3 To connect to the EH-150 series, connect to the serial port of the CPU module.
The module jack (8 pins)/D-sub connector (15 pins) conversion cable (EHRS05 made by HITACHI Industrial Equipment Systems Co., Ltd.) is necessary.

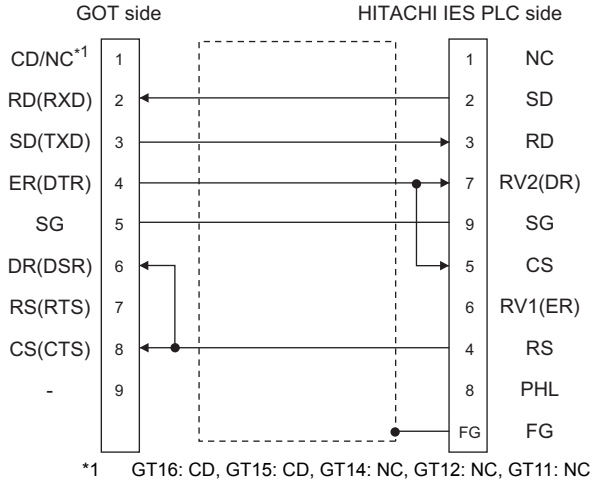
# 2.3 Connection Diagram

The following diagram shows the connection between the GOT and the PLC.

## 2.3.1 RS-232 cable

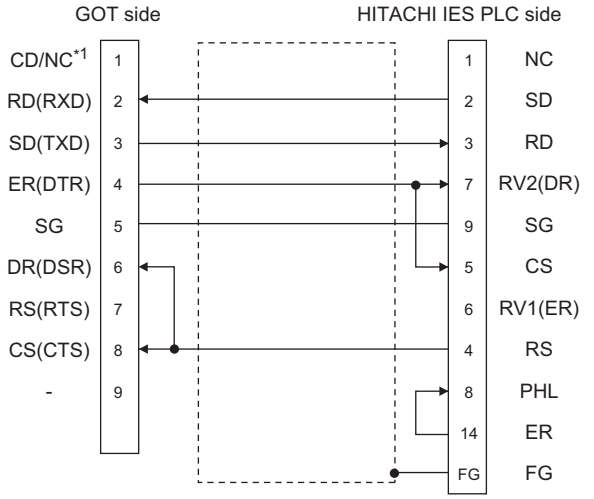
### ■ Connection diagram

(1) RS-232 connection diagram 1)




*1 GT16: CD, GT15: CD, GT14: NC, GT12: NC, GT11: NC

(2) RS-232 connection diagram 2)




*1 GT16: CD, GT15: CD, GT14: NC, GT12: NC, GT11: NC

### ■ Precautions when preparing a cable

(3) Cable length

The length of the RS-232 cable must be 15m or less.

(4) GOT side connector

For the GOT side connector, refer to the following.

☞ 1.4.1GOT connector specifications

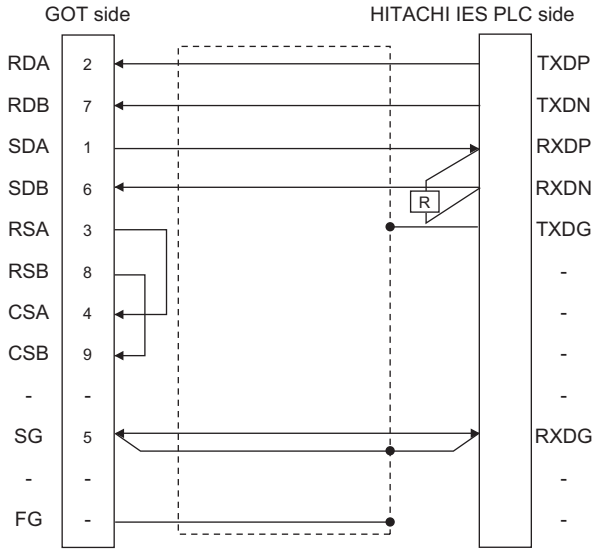
(5) HITACHI IES PLC side connector

Use the connector compatible with the HITACHI IES PLC side module.
For details, refer to the HITACHI IES PLC user's manual.

## 2.3.2 RS-422 cable

### ■ Connection diagram

(1) RS-422 connection diagram 1)



## ■ Precautions when preparing a cable

(2) Cable length
The length of the RS-422 cable must be 200m or less.

(3) GOT side connector
For the GOT side connector, refer to the following.

☞ 1.4.1GOT connector specifications

(4) HITACHI IES PLC side connector
Use the connector compatible with the HITACHI IES PLC side module.
For details, refer to the HITACHI IES PLC user's manual.

## ■ Connecting terminating resistors

(1) GOT side
Set the terminating resistor setting switch of the GOT main unit to "Disable".
For the procedure to set the terminating resistor, refer to the following.

☞ 1.4.3Terminating resistors of GOT

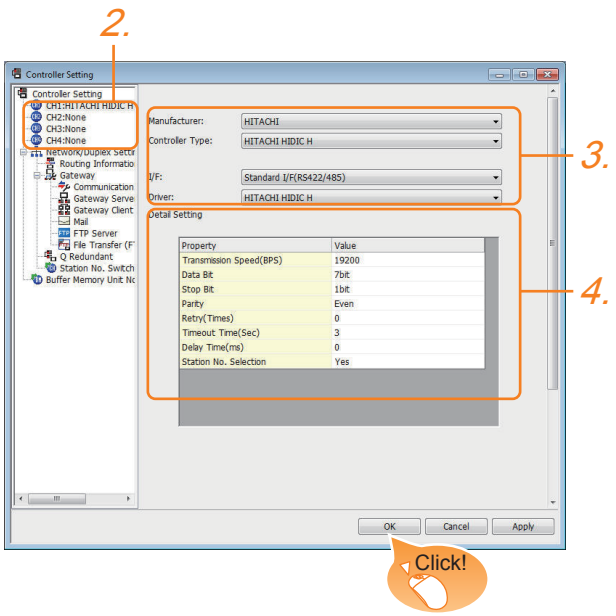
(2) HITACHI IES PLC side
When connecting an intelligent serial port module to a GOT, a terminating resistor has to be connected to the intelligent serial port module.

☞ HITACHI IES PLC user's Manual

# 2.4 GOT Side Settings

## 2.4.1 Setting communication interface (Communication settings)

Set the channel of the connected equipment.




1. Select [Common] → [Controller Setting] from the menu.
2. The Controller Setting window is displayed. Select the channel to be used from the list menu.
3. Set the following items.
   - Manufacturer: HITACHI
   - Controller Type: HITACHI HIDIC H
   - I/F: Interface to be used
   - Driver: Set either of the following.
     - HITACHI HIDIC H
     - HITACHI HIDIC H (Protocol2)
4. The detailed setting is displayed after Manufacturer, Controller Type, I/F, and Driver are set.
   Make the settings according to the usage environment.
   2.4.2 Communication detail settings

Click the [OK] button when settings are completed.

**POINT**

The settings of connecting equipment can be confirmed in [I/F Communication Setting].
For details, refer to the following.
1.1.2I/F communication setting

## 2.4.2 Communication detail settings

Make the settings according to the usage environment.

(1) HITACHI HIDIC H

| Property | Value |
|---|---|
| Transmission Speed(BPS) | 19200 |
| Data Bit | 7 bit |
| Stop Bit | 1 bit |
| Parity | Even |
| Retry(Times) | 0 |
| Timeout Time(Sec) | 3 |
| Delay Time(ms) | 0 |
| Station No. Selection | Yes |

| Item | Description | Range |
|---|---|---|
| Transmission Speed | Set this item when change the transmission speed used for communication with the connected equipment.<br>(Default: 19200bps) | 4800bps, 9600bps, 19200bps, 38400bps |
| Data Bit | Set this item when change the data length used for communication with the connected equipment.<br>(Default: 7bit) | 7bit (fixed) |
| Stop Bit | Specify the stop bit length for communications.<br>(Default: 1bit) | 1bit (fixed) |
| Parity | Specify whether or not to perform a parity check, and how it is performed during communication.<br>(Default: Even) | Even (fixed) |
| Retry | Set the number of retries to be performed when a communication error occurs.<br>(Default: 0time) | 0 to 5times |
| Timeout Time | Set the time period for a communication to time out.<br>(Default: 3sec) | 1 to 30sec |
| Delay Time | Set this item to adjust the transmission timing of the communication request from the GOT.<br>(Default: 0ms) | 0 to 300 (ms) |
| Station No. Selection | Specify whether to use the station No. during communication.<br>If [Yes] is selected, the station No. is fixed to "0."<br>(Default: Yes) | Yes or No |

(2) HITACHI HIDIC H (Protocol2)

| Property | Value |
|---|---|
| Transmission Speed(BPS) | 19200 |
| Data Bit | 7 bit |
| Stop Bit | 1 bit |
| Parity | Even |
| Retry(Times) | 0 |
| Timeout Time(Sec) | 3 |
| Delay Time(ms) | 0 |
| Station No. Selection | Yes |

| Item | Description | Range |
|---|---|---|
| Transmission Speed | Set this item when change the transmission speed used for communication with the connected equipment.<br>(Default: 19200bps) | 4800bps,<br>9600bps,<br>19200bps,<br>38400bps |
| Data Bit | Set this item when change the data length used for communication with the connected equipment.<br>(Default: 7bit) | 7bit (fixed) |
| Stop Bit | Specify the stop bit length for communications.<br>(Default: 1bit) | 1bit (fixed) |
| Parity | Specify whether or not to perform a parity check, and how it is performed during communication.<br>(Default: Even) | Even (fixed) |
| Retry | Set the number of retries to be performed when a communication error occurs.<br>(Default: 0time) | 0 to 5times |
| Timeout Time | Set the time period for a communication to time out.<br>(Default: 3sec) | 1 to 30sec |
| Delay Time | Set this item to adjust the transmission timing of the communication request from the GOT.<br>(Default: 0ms) | 0 to 300 (ms) |
| Station No. Selection | Specify whether to use the station No. during communication.<br>If [Yes] is selected, the station No. is fixed to "0."<br>(Default: Yes) | Yes or No |

**POINT**

(1) Communication interface setting by the Utility
The communication interface setting can be changed on the Utility's [Communication Settings] after writing [Communication Settings] of project data.
For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

(2) Precedence in communication settings
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

# 2.5 PLC Side Setting



**POINT**

HITACHI IES PLC

For details of the HITACHI IES PLC, refer to the following manual.

☞ HITACHI IES PLC user's Manual

## ■ Directly connecting to the CPU

| Item | Set value |
|---|---|
| Transmission speed*1*2*3 | 4800bps, 9600bps, 19200bps, 38400bps |
| Station No. | 0 |
| Data bit | 7bit |
| Stop bit | 1bit |
| Parity bit | Even |
| Control Method | DTR control |
| Communication format | RS-232 |
| Sum check | Done |
| Protocol | transmission control procedure 1 |

*1 Indicates only the transmission speeds that can be set on the GOT side.

*2 The transmission speed setting must be consistent with that of the GOT side.
For the transmission speed setting on the GOT side, refer to the following.

☞ 2.4.2 Communication detail settings

*3 The setting range varies with the connected PLC.

## ■ Connecting to the intelligent serial port module

### (1) For transmission control procedure1

| Item | Set value |
|---|---|
| Transmission speed | 19200bps |
| Station No. | 0 |
| Data bit | 7bit |
| Stop bit | 1bit |
| Parity bit | Even |
| Control Method | None |
| Communication format | For RS-232 communication: RS-232 MODE switch 2<br>For RS-422 communication: RS-422 MODE switch 2 |
| Sum check | Done |

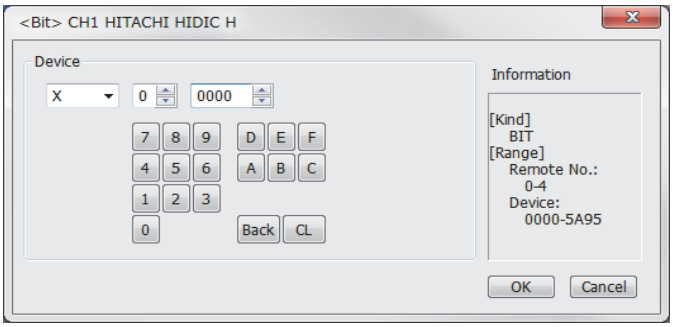
### (2) For transmission control procedure2

| Item | Set value |
|---|---|
| Transmission speed | 19200bps |
| Station No. | 0 |
| Data bit | 7bit |
| Stop bit | 1bit |
| Parity bit | Even |
| Control Method | None |
| Communication format | For RS-232 communication: RS-232 MODE switch 9<br>For RS-422 communication: RS-422 MODE switch 9 |
| Sum check | Done |

# 2.6 Device Range that Can Be Set

The device ranges of controller that can be used for GOT are as follows.
Note that the device ranges in the following tables are the maximum values that can be set in GT Designer3.
The device specifications of controllers may differ depending on the models, even though belonging to the same series.
Please make the setting according to the specifications of the controller actually used.
When a non-existent device or a device number outside the range is set, other objects with correct device settings may not be monitored.

## ■ Setting item




| Item | Description |
|---|---|
| Device | Set the device name, device number, and bit number.<br>The bit number can be set only when specifying the bit of word device. |
| Information | Displays the device type and setting range which are selected in [Device]. |

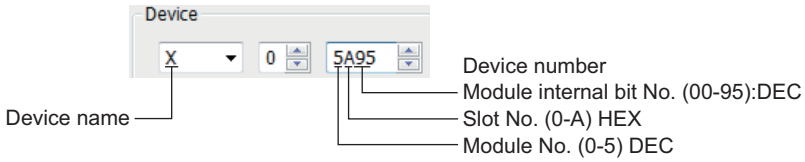
POINT

Device settings of HITACHI IES PLC

(1) When specifying an external I/O device

(a) When setting a bit device

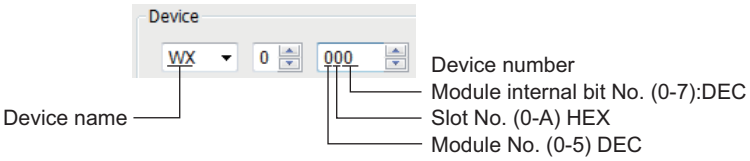
Set the device using the format of module No. + slot No. + module bit No.




(b) When setting a word device

Set the device using the format of module No. + slot No. + module bit No.

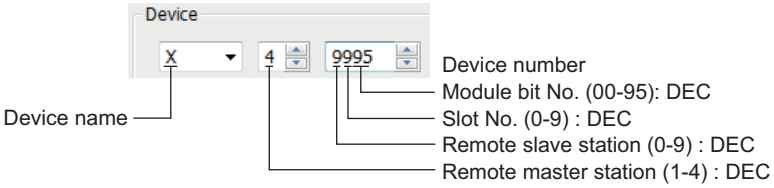
For the device name setting, enter "w" before the bit device name.




(2) When specifying a remote external I/O device

(a) When setting a bit device

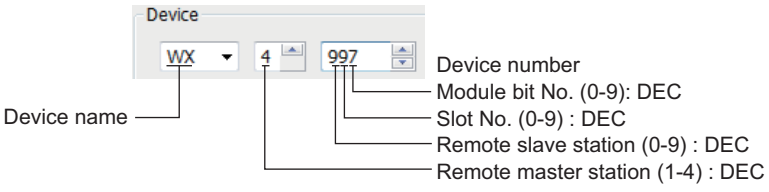
Set the device using the format of remote master station + remote slave station + slot No. + module bit No.




(b) When setting a word device

Set the device using the format of remote master station + remote slave station + slot No. + module bit No.

For the device name setting, enter "w" before the bit device name.



## 2.6.1 HITACHI HIDIC H Series

| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | External input (X) | X00000 to X05A95 | Hexadecimal + Decimal |
| | External output (Y) | Y00000 to Y05A95 | |
| | Remote external input (X) | X10000 to X49995 | Decimal |
| | Remote external output (Y) | Y10000 to Y49995 | |
| | 1st CPU link (L) | L0000 to L3FFF | Hexadecimal |
| | 2nd CPU link (L1) | L10000 to L13FFF | |
| | Data area (M) | M0000 to M3FFF | |
| | On-delay timer (TD)*1 | TD0 to TD255 | Decimal |
| | Single-shot timer (SS)*1 | SS0 to SS255 | |
| | Watchdog timer (WDT)*1 | WDT0 to WDT255 | |
| | Monostable timer (MS)*1 | MS0 to MS255 | |
| | Retentive timer (TMR)*1 | TMR0 to TMR255 | |
| | Up counter (CU)*1 | CU0 to CU511 | |
| | Ring counter (RCU)*1 | RCU0 to RCU511 | |
| | Up/Down counter (CT)*1 | CT0 to CT511 | |
| | Bit internal output (R) | R0 to R7BF | Hexadecimal |
| | Rising edge detection (DIF)*1 | DIF0 to DIF511 | Decimal |
| | Falling edge detection (DFN)*1 | DFN0 to DFN511 | |
| | The bit specification of the word device (except External input, External output, Remote external input, Remote external output, 1st CPU link, 2nd CPU link, Data area) | Setting range of each word device | — |
| Word device | External input (WX) | WX0000 to WX05A7 | Hexadecimal + Decimal |
| | External output (WY) | WY0000 to WY05A7 | |
| | Remote external input (WX) | WX1000 to WX4997 | Decimal |
| | Remote external output (WY) | WY1000 to WY4997 | |
| | First CPU link (WL) | WL000 to WL3FF | Hexadecimal |
| | 2nd CPU link (WL1) | WL1000 to WL13FF | |
| | Data area (WM) | WM000 to WM3FF | |
| | Timer/Counter (Elapsed value) (TC)*1 | TC0 to TC511 | Decimal |
| | Word internal output (WR) | WR000 to WR3FF | Hexadecimal |

*1 Overlapped numbers cannot be used.

*2 Do not set device outside the range.
If the set device is outside the range, the object set by the device within the range may not be displayed.

# 3

# CONNECTION TO HITACHI PLC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# 3. CONNECTION TO HITACHI PLC

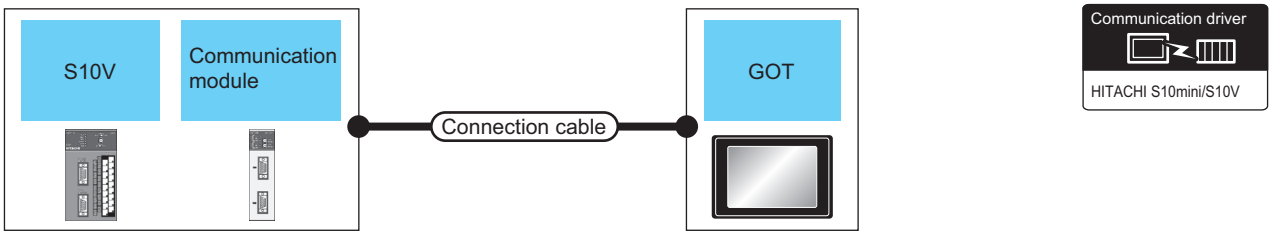
## 3.1 Connectable Model List

The following table shows the connectable models.

| Series | Model name | Clock | Communication Type | Connectable model | Refer to |
|---|---|---|---|---|---|
| S10V | LQP510 | ○ | RS-232<br>RS-422 | GT27 GT25 GT23 | 3.2.1 |
| | LQP520 | | | | |
| S10mini | LQP800 | ○ | RS-232<br>RS-422 | GT27 GT25 GT23 | 3.2.2 |
| | LQP000 | | | | |
| | LQP010 | | | | |
| | LQP011 | | | | |
| | LQP120 | | | | |

# 3.2 System Configuration

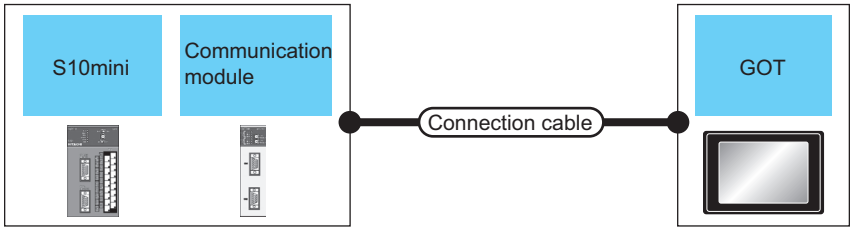
## 3.2.1 Connecting to S10V

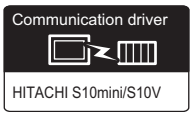



| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | Communication module*1 | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| LQP510<br>LQP520 | LQE560 | RS-232 | GT09-C30R21301-9S (3m)<br>or<br>User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 communication module |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | LQE565 | RS-422 | GT09-C30R41301-9S (3m)<br>GT09-C100R41301-9S(10m)<br>GT09-C200R41301-9S(20m)<br>GT09-C300R41301-9S(30m)<br>or<br>User preparing RS-422 connection diagram 2) | 500m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | GT15-RS4-9S | GT27 GT25 | |
| LQP510 | | RS-422 | GT09-C30R41301-9S (3m)<br>GT09-C100R41301-9S(10m)<br>GT09-C200R41301-9S(20m)<br>GT09-C300R41301-9S(30m)<br>or<br>User preparing RS-422 connection diagram 2) | 500m | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 PLC |
| | | | | | GT15-RS4-9S | GT27 GT25 | |

*1 Product manufactured by Hitachi, Ltd.For details of the product, contact Hitachi, Ltd.

## 3.2.2 Connecting to S10mini




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Series | Communication module*1 | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| S10mini | LQE560<br>LQE060<br>LQE160 | RS-232 | GT09-C30R21301-9S (3m)<br>or<br>User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 communication module |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | LQE565<br>LQE165 | RS-422 | GT09-C30R41301-9S (3m)<br>GT09-C100R41301-9S(10m)<br>GT09-C200R41301-9S(20m)<br>GT09-C300R41301-9S(30m)<br>or<br>User preparing RS-422 connection diagram 2) | 500m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | GT15-RS4-9S | GT27 GT25 | |

*1 Product manufactured by Hitachi, Ltd.For details of the product, contact Hitachi, Ltd.

# 3.3 Connection Diagram

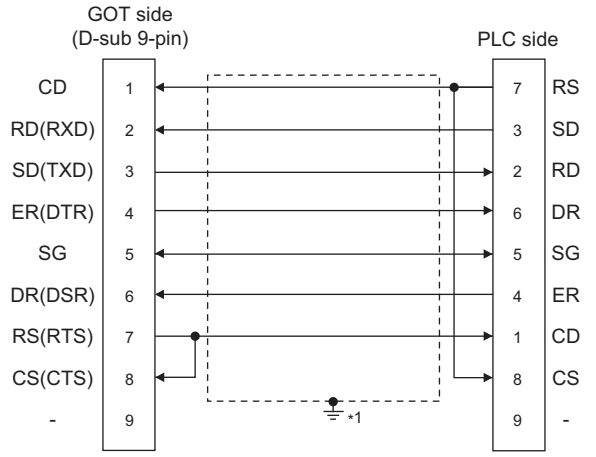
The following diagram shows the connection between the GOT and the PLC.

## 3.3.1 RS-232 cable

### ■ Connection diagram

(1) RS-232 connection diagram 1)

For the GT16, GT15




*1 Connect FG grounding to the appropriate part of a cable shield line.

### ■ Precautions when preparing a cable

(2) Cable length

The length of the RS-232 cable must be 15m or less.

(3) GOT side connector

For the GOT side connector, refer to the following.

1.4.1GOT connector specifications

(4) HITACHI PLC side connector

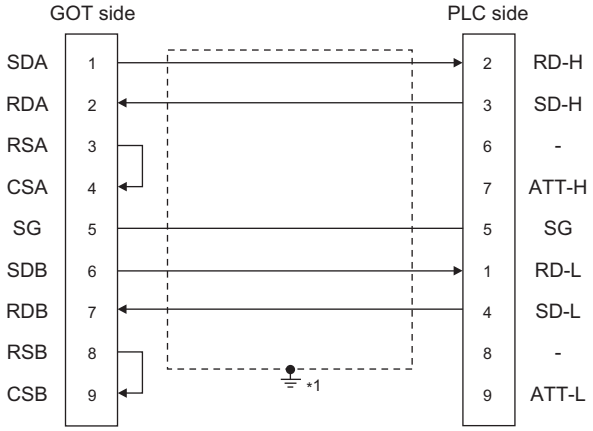
Use the connector supporting the HITACHI PLC side module.

For details, refer to the HITACHI PLC user's manual.

## 3.3.2 RS-422 cable

### ■ Connection diagram

(1) RS-422 connection diagram 2)




*1 Connect FG grounding to the appropriate part of a cable shield line.

### ■ Precautions when preparing a cable

(2) Cable length

The length of the RS-422 cable must be 500m or less.

(3) GOT side connector

For the GOT side connector, refer to the following.

1.4.1GOT connector specifications

(4) HITACHI PLC side connector

Use the connector compatible with the HITACHI PLC side module.

For details, refer to the HITACHI PLC user's manual.

### ■ Connecting terminating resistors

(1) GOT side

When connecting a PLC to the GOT, a terminating resistor must be connected to the GOT.

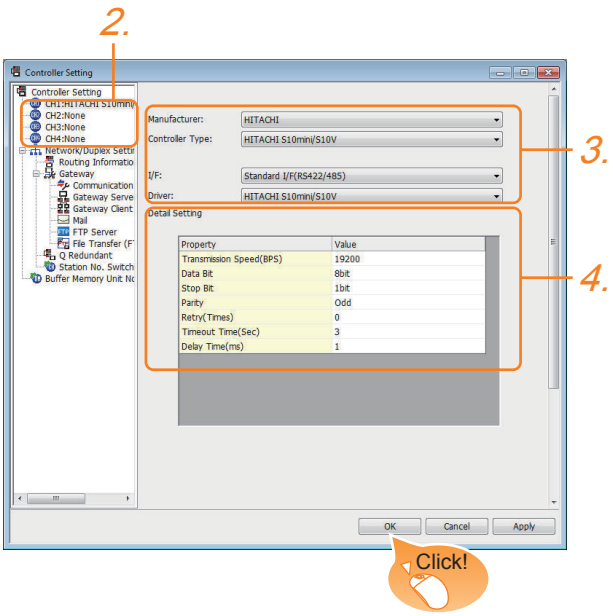
For the procedure to set the terminating resistor, refer to the following.

1.4.3Terminating resistors of GOT

# 3.4 GOT Side Settings

## 3.4.1 Setting communication interface (Communication settings)

Set the channel of the connected equipment.




1. Select [Common] → [Controller Setting] from the menu.
2. The Controller Setting window is displayed. Select the channel to be used from the list menu.
3. Set the following items.
   - Manufacturer: HITACHI
   - Controller Type: HITACHI S10mini/S10V
   - I/F: Interface to be used
   - Driver: HITACHI S10mini/S10V
4. The detailed setting is displayed after Manufacturer, Controller Type, I/F, and Driver are set.
   Make the settings according to the usage environment.
   ☞ 3.4.2 Communication detail settings

Click the [OK] button when settings are completed.

**POINT**

The settings of connecting equipment can be confirmed in [I/F Communication Setting].
For details, refer to the following.
☞ 1.1.2I/F communication setting

## 3.4.2 Communication detail settings

Make the settings according to the usage environment.

| Property | Value |
|---|---|
| Transmission Speed(BPS) | 19200 |
| Data Bit | 8 bit |
| Stop Bit | 1 bit |
| Parity | Odd |
| Retry(Times) | 0 |
| Timeout Time(Sec) | 3 |
| Delay Time(ms) | 1 |

| Item | Description | Range |
|---|---|---|
| Transmission Speed | Set this item when change the transmission speed used for communication with the connected equipment.<br>(Default: 19200bps) | 9600bps,<br>19200bps,<br>38400bps,<br>57600bps,<br>115200bps |
| Data Bit | Set this item when change the data length used for communication with the connected equipment.<br>(Default: 8bits) | 7bits/8bits |
| Stop Bit | Specify the stop bit length for communications.<br>(Default: 8bits) | 1bit/2bits |
| Parity | Specify whether or not to perform a parity check, and how it is performed during communication.<br>(Default: Odd) | None<br>Even<br>Odd |
| Retry | Set the number of retries to be performed when a communication error occurs.<br>(Default: 0time) | 0 to 5times |
| Timeout Time | Set the time period for a communication to time out.<br>(Default: 3sec) | 1 to 30sec |
| Delay Time | Set this item to adjust the transmission timing of the communication request from the GOT.<br>(Default: 0) | 0 to 300m |

**POINT**

(1) Communication interface setting by the Utility
The communication interface setting can be changed on the Utility's [Communication Settings] after writing [Communication Settings] of project data.
For details on the Utility, refer to the following manual.
☞ GOT2000 Series User's Manual (Utility)

(2) Precedence in communication settings
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

# 3.5 PLC Side Setting

**POINT**

HITACHI PLC

For details of HITACHI PLCs, refer to the following manuals.

☞ HITACHI PLC user's Manual

| Model name | | Refer to |
|---|---|---|
| Communication module | LQE560 | 3.5.1 |
| | LQE060 | |
| | LQE160 | |
| | LQE565 | |
| | LQE165 | |

## 3.5.1 Connecting to communication module

### ■ Communication settings

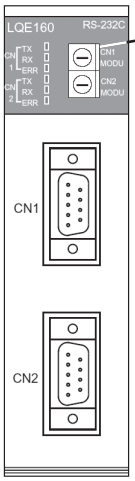
Make the communication settings of the Communication module.

| Item | Set value |
|---|---|
| Channel No. setting*1*2 | #0 to #3 |
| Protocol setting | H-7338 protocol |
| Transmission speed | 19200bps (fixed) |
| Data bit | 8bits (fixed) |
| Parity bit | Odd (fixed) |
| Start bit | 1 bit (fixed) |
| Stop bit | 1 bit (fixed) |

*1 The ranges of available channel No. differ depending on the model of communication module.
*2 Avoid duplication of the channel No.

### ■ Settings by switch

Make the communication settings using each setting switch.




Setting switches for the channel No. and the protocol
CN1 MODU, CN2 MODU

(1) Settings of the channel No. and the protocol

| Switch position | Protocol | Channel No. |
|---|---|---|
| 8 | H-7338 | #0 |
| 9 | | #1 |
| A | | #2 |
| B | | #3 |

CN1 MODU

CN2 MODU

# 3.6 Device Range that Can Be Set

The device ranges of controller that can be used for GOT are as follows.

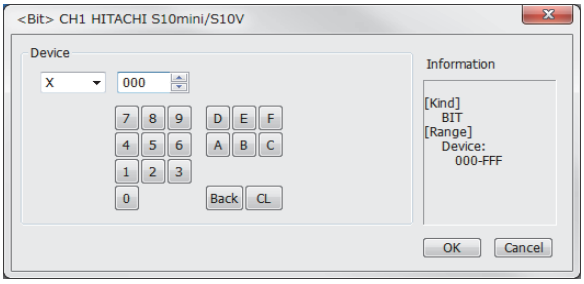
Note that the device ranges in the following tables are the maximum values that can be set in GT Designer3.

The device specifications of controllers may differ depending on the models, even though belonging to the same series.

Please make the setting according to the specifications of the controller actually used.

When a non-existent device or a device number outside the range is set, other objects with correct device settings may not be monitored.

## ■ Setting item



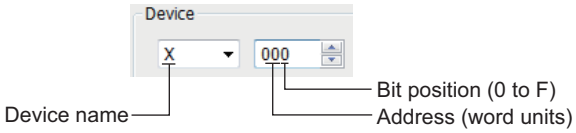

| Item | Information |
|---|---|
| Device*1 | Set the device name, device number, and bit number. The bit number can be set only when specifying the bit of word device. |
| Information | Displays the device type and setting range which are selected in [Device]. |

*1 The uppermost bit is b0 and the lowermost bit is b15.

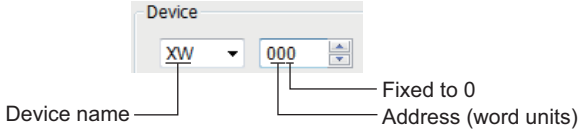
**POINT**

Device settings of HITACHI PLC

(1) When setting a bit device
Set the device using the format of address (word unit) + bit number (0 to F).




(2) When setting a word device
For external input (XW), external output (YW), internal register (RW), extended internal register (MW, AW), keep relay (KW), on-delay timer (TW), one-shot timer (UW), up-down counter (CW), global link register (GW), event register (EW), system register (SW), transfer register (JW), and receive register (QW), set as follows.




## 3.6.1 HITACHI S10mini/S10V

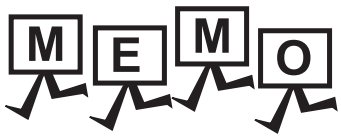
| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | External input (X) | X000 to XFFF | Hexadecimal |
| | External output (Y) | Y000 to YFFF | |
| | Internal register (R) | R000 to RFFF | |
| | Keep relay (K) | K000 to KFFF | |
| | Extended internal register (M) | M000 to MFFF | |
| | Extended internal register (A) | A000 to AFFF | |
| | On-delay timer (T) | T000 to T1FF | |
| | One-shot timer (U) | U000 to U0FF | |
| | Up-down counter (C) | C00 to CFF | |
| | Global link register (GL)*6 | GL000 to GLFFF | |
| | Event register (E) | E000 to EFFF | |
| | System register (S)*1 | S000 to SBFF | |
| | Transfer register (J) | J000 to JFFF | |
| | Receive register (Q) | Q000 to QFFF | |
| | The bit specification of the word device (except External input, External output, Internal register, Extended internal register, Keep relay, On-delay timer, One-shot timer, Up/Down counter, Global link register, Event register, System register, Transfer register, Receive register) | Setting range of each word device | — |
| Word device | External input (XW) | XW000 to XWFF0 | Hexadecimal |
| | External output (YW) | YW000 to YWFF0 | |
| | Internal register (RW) | RW000 to RWFF0 | |
| | Extended internal register (MW) | MW000 to MWFF0 | |
| | Extended internal register (AW) | AW000 to AWFF0 | |
| | Keep relay (KW) | KW000 to KWFF0 | |
| | On-delay timer (TW) | TW000 to TW1F0 | |

| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Word device | One-shot timer (UW) | UW000 to UW0F0 | Hexadecimal |
| | Up-down counter (CW) | CW00 to CWF0 | |
| | Global link register (GW) | GW000 to GWFF0 | |
| | Event register (EW) | EW000 to EWFF0 | |
| | System register (SW)*1 | SW000 to SWBF0 | |
| | Transfer register (JW) | JW000 to JWFF0 | |
| | Receive register (QW) | QW000 to QWFF0 | |
| | On-delay timer (current value) (TC)*2 | TC000 to TC1FF | |
| | On-delay timer (set value) (TS)*2 | TS000 to TS1FF | |
| | One-shot timer (current value) (UC)*2 | UC000 to UC0FF | |
| | One-shot timer (set value) (US)*2 | US000 to US0FF | |
| | Up-down counter (current value) (CC)*2 | CC00 to CCFF | |
| | Up-down counter (set value) (CS)*2 | CS00 to CSFF | |
| | Function data register (DW)*4*5 | DW000 to DWFFF | |
| | Function work register (FW)*4*5 | FW000 to FWBFF | |
| | Extended function work register (LWW)*4*5 | LWW0000 to LWWFFFF | |
| | Backup work register (LXW)*5 | LXW0000 to LXW3FFF | |
| | Long-word work register (LLL)*3 | LLL0000 to LLL1FFF | |
| Double word device | Backup Long-word work register (LML)*3*4 | LML0000 to LML1FFF | |
| | Floating-point work register (LF)*3 | LF0000 to LF1FFF | |
| | Backup single-precision floating-point work register (LG)*3 | LG0000 to LG1FFF | |

*1 Only reading is possible.
*2 Only 16-bit (1-word) designation is allowed.
*3 Only 32-bit (2-word) designation is allowed.
*4 When it is used with bit specification (bit specification of word device), the offset function cannot be used.
*5 When bit specification (bit specification of word device) is performed, the uppermost bit is b0 and the lowermost bit is b15.

| Higher | | | | Lower |
|---|---|---|---|---|
| b0 | b1 | ..... | b14 | b15 |

*6 Device "GL" corresponds to device "G" of the PLC.


MEMO

# 4

# CONNECTION TO FUJI PLC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4.4 Device Range that Can Be Set . . . . . 4 - 27
4.5 Precautions . . . . . 4 - 29

# 4. CONNECTION TO FUJI PLC

## 4.1 Connectable Model List

The following table shows the connectable models.

| Series | Model name | Clock | Communication Type | Connectable model | Refer to |
|---|---|---|---|---|---|
| MICREX-F | F55 | × | RS-232<br>RS-485 | GT27 GT25 GT23 | 4.2.1 |
| | F70 | × | RS-232<br>RS-485 | GT27 GT25 GT23 | 4.2.2 |
| | F120S | × | RS-232<br>RS-485 | GT27 GT25 GT23 | 4.2.3 |
| | F140S | | | | |
| | F15□S | | | | |
| MICREX-SX SPH | SPH200 | × | RS-232<br>RS-485 | GT27 GT25 | 4.2.4 |
| | SPH300 | | | | |
| | SPH2000 | | | | |
| | SPH3000 | | | | |
| | SPH200 | × | Ethernet | GT27 GT25 | 4.3.1 |
| | SPH300 | | | | |
| | SPH2000 | | | | |
| | SPH3000 | | | | |

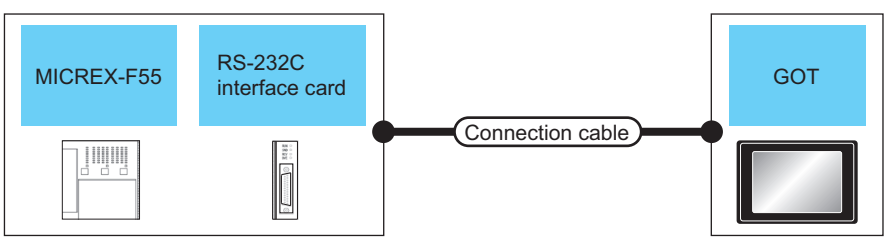
# 4.2 Serial connection

## 4.2.1 Connecting to MICREX-F55

For details on the system configuration on the PLC side, refer to the following section.

4.5 Precautions

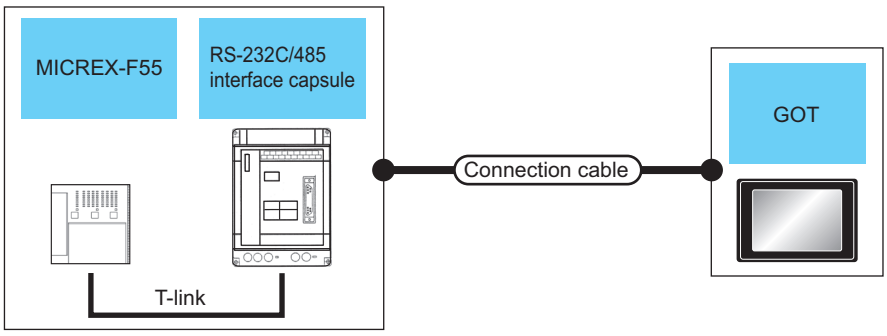
### ■ When using the RS-232 interface card




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | RS-232C interface card*1 | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| F55 | NV1L-RS2 | RS-232 | GT09-C30R21003-25P(3m) or User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 RS-232C interface card |
| | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by Fuji Electric Co., Ltd. For details of the product, contact Fuji Electric Co., Ltd.

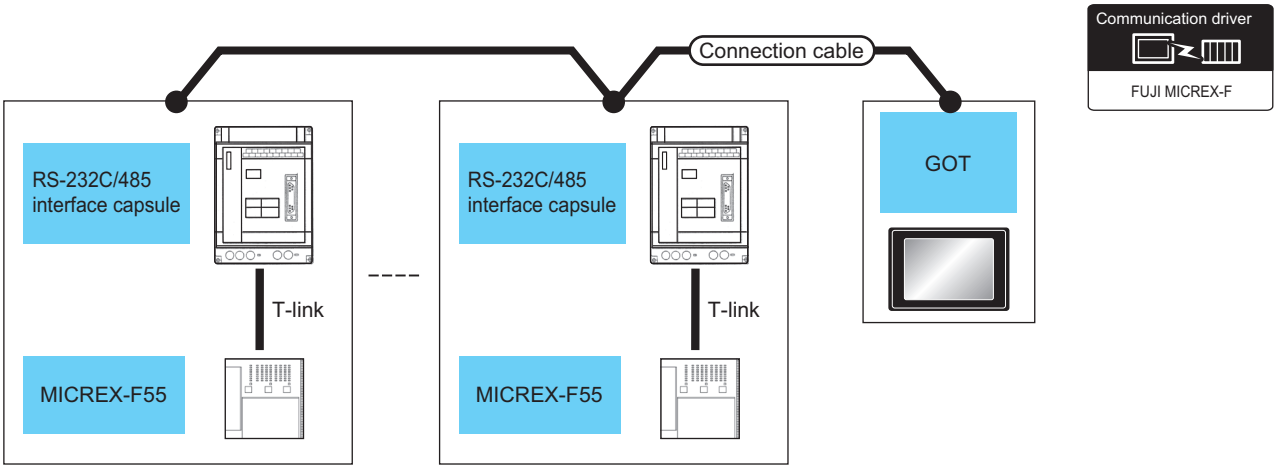
### ■ When using the RS-232C/485 interface capsule




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | RS-232C/485 interface capsule*1 | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| F55 | FFK120A-C10 | RS-232 | GT09-C30R21003-25P(3m) or User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 RS-232C/485 interface capsule |
| | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by Fuji Electric Co., Ltd. For details of the product, contact Fuji Electric Co., Ltd.

■ When connecting to multiple PLCs




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | RS-232C/485 interface capsule*1 | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| F55 | FFK120A-C10 | RS-485 | GT09-C30R41001-6T(3m)<br>GT09-C100R41001-6T(10m)<br>GT09-C200R41001-6T(20m)<br>GT09-C300R41001-6T(30m)<br>or<br>User creating RS-485 connection diagram 1) | 500m*2 | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for up to 6 PLCs (RS-232C/485 interface capsules) |
| | | | | 500m | GT15-RS4-9S | GT27 GT25 | |

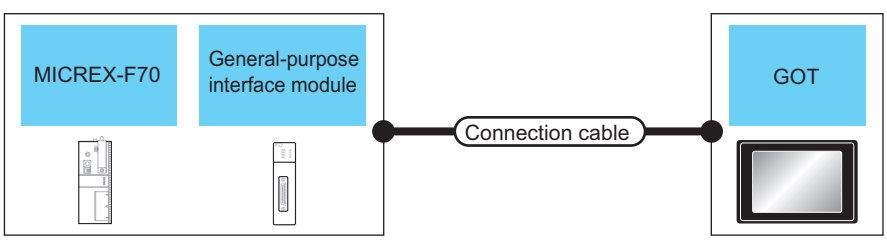
*1 Product manufactured by Fuji Electric Co., Ltd. For details of the product, contact Fuji Electric Co., Ltd.
*2 Including the cable length of the option devices.

## 4.2.2 Connecting to MICREX-F70

For details on the system configuration on the PLC side, refer to the following.

4.5 Precautions

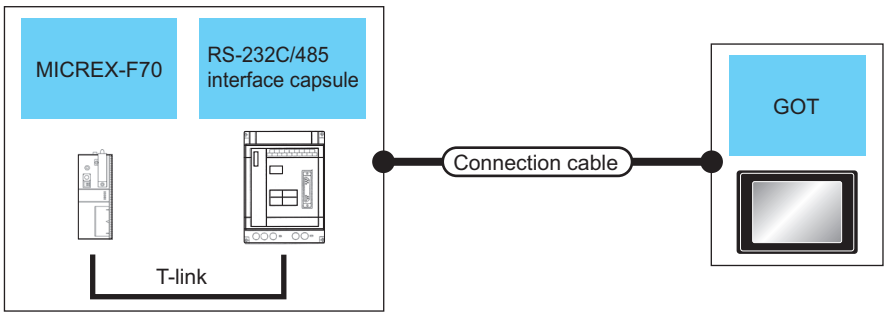
### ■ When using general-purpose interface modules




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | General-purpose interface module*1 | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| F70 | NC1L-RS2 | RS-232 | GT09-C30R21003-25P(3m)<br>or<br>User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 general-purpose interface module |
| | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by Fuji Electric Co., Ltd. For details of the product, contact Fuji Electric Co., Ltd.

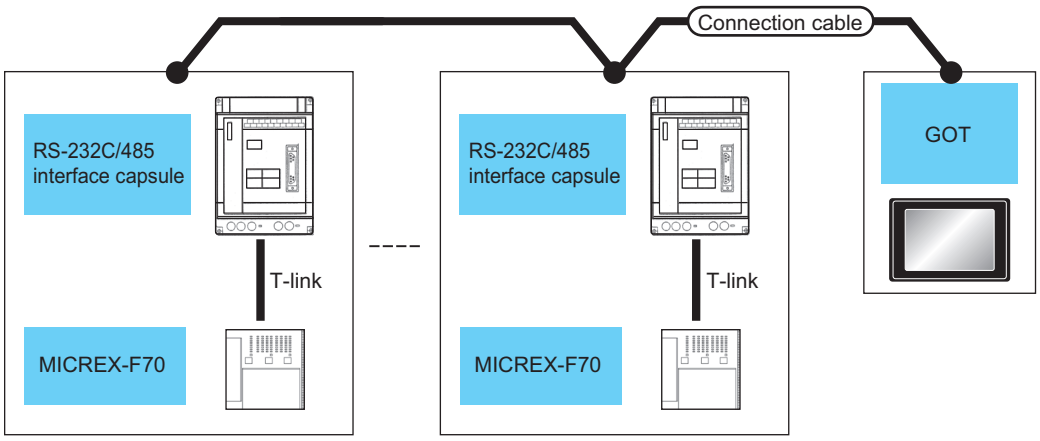
### ■ When using the RS-232C/485 interface capsule




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | RS-232C/485 interface capsule*1 | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| F70 | FFK120A-C10 | RS-232 | GT09-C30R21003-25P(3m)<br>or<br>User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 RS-232C/485 interface capsule |
| | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by Fuji Electric Co., Ltd. For details of the product, contact Fuji Electric Co., Ltd.

■ When connecting to multiple PLCs (using RS-232C/485 interface capsules)

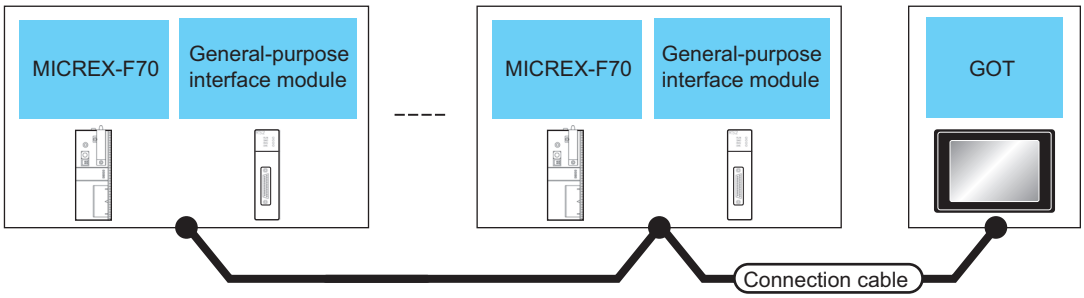



| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | RS-232C/485 interface capsule*1 | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| F70 | FFK120A-C10 | RS-485 | GT09-C30R41001-6T(3m)<br>GT09-C100R41001-6T(10m)<br>GT09-C200R41001-6T(20m)<br>GT09-C300R41001-6T(30m)<br>or<br>User preparing RS-485 connection diagram 1) | 500m*2 | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for up to 6 PLCs (RS-232C/485 interface capsules) |
| | | | | 500m | GT15-RS4-9S | GT27 GT25 | |

*1 Product manufactured by Fuji Electric Co., Ltd. For details of the product, contact Fuji Electric Co., Ltd.

*2 Including the cable length of the option devices.

■ When connecting to multiple PLCs (using general-purpose interface modules)




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | General-purpose interface module*1 | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| F70 | NC1L-RS4 | RS-485 | GT09-C30R41001-6T(3m)<br>GT09-C100R41001-6T(10m)<br>GT09-C200R41001-6T(20m)<br>GT09-C300R41001-6T(30m)<br>or<br>User preparing RS-485 connection diagram 1) | 500m*2 | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for up to 31 PLCs (general-purpose interface modules) |
| | | | | 500m | GT15-RS4-9S | GT27 GT25 | 1 GOT for up to 10 PLCs (general-purpose interface modules) |

*1 Product manufactured by Fuji Electric Co., Ltd. For details of the product, contact Fuji Electric Co., Ltd.

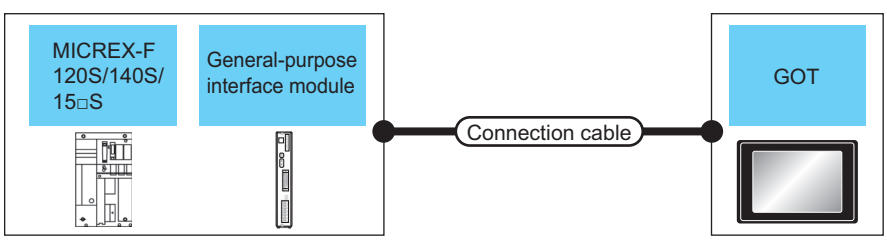
*2 Including the cable length of the option devices.

## 4.2.3 Connecting to MICREX-F120S/140S/15[]S

For details on the system configuration on the PLC side, refer to the following.

4.5 Precautions

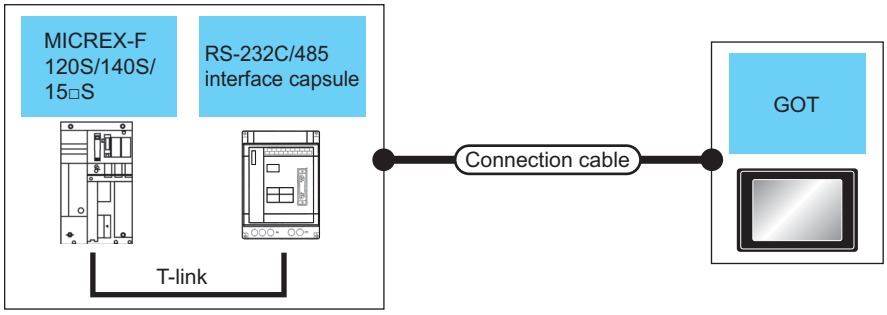
### ■ When using general-purpose interface modules




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | General-purpose interface module*1 | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| F120S<br>F140S<br>F15□S | FFU120B | RS-232 | GT09-C30R21003-25P(3m)<br>or<br>User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 general-purpose interface module |
| | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by Fuji Electric Co., Ltd. For details of the product, contact Fuji Electric Co., Ltd.

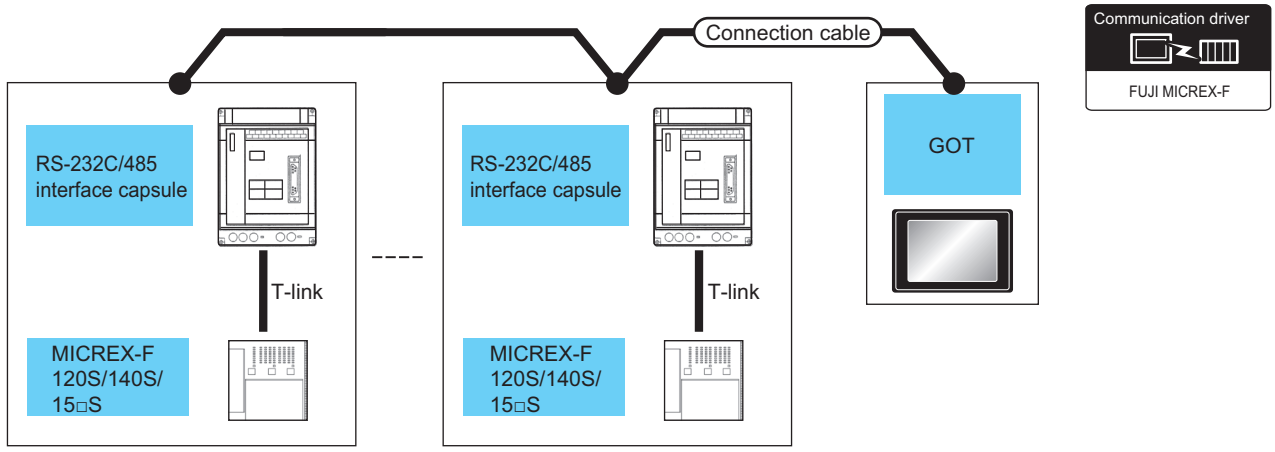
### ■ When using the RS-232C/485 interface capsule




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | RS-232C/485 interface capsule*1 | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| F120S<br>F140S<br>F15□S | FFK120A-C10 | RS-232 | GT09-C30R21003-25P(3m)<br>or<br>User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 RS-232C/485 interface capsule |
| | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by Fuji Electric Co., Ltd. For details of the product, contact Fuji Electric Co., Ltd.

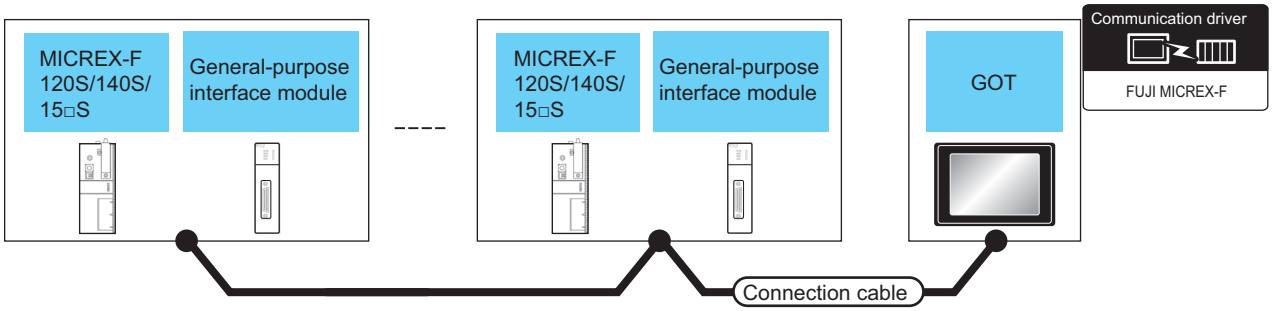
## ■ When connecting to multiple PLCs (using RS-232C/485 interface capsules)




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | RS-232C/485 interface capsule*1 | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| F120S F140S F15□S | FFK120A-C10 | RS-485 | GT09-C30R41001-6T(3m) GT09-C100R41001-6T(10m) GT09-C200R41001-6T(20m) GT09-C300R41001-6T(30m) or User preparing RS-485 connection diagram 1) | 500m*2 | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for up to 6 PLCs (RS-232C/485 interface capsules) |
| | | | | 500m | GT15-RS4-9S | GT27 GT25 | |

*1 Product manufactured by Fuji Electric Co., Ltd. For details of the product, contact Fuji Electric Co., Ltd.
*2 Including the cable length of the option devices.

■ When connecting to multiple PLCs (using general-purpose interface modules)

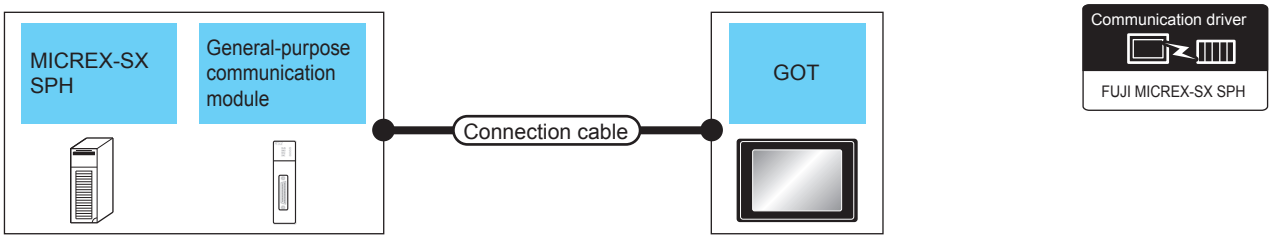



| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | General-purpose interface module*1 | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| F120S<br>F140S<br>F15□S | FFU120B | RS-485 | GT09-C30R41001-6T(3m)<br>GT09-C100R41001-6T(10m)<br>GT09-C200R41001-6T(20m)<br>GT09-C300R41001-6T(30m)<br>or<br>User preparing RS-485 connection diagram 1) | 500m*2 | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for up to 31 PLCs (general-purpose interface modules) |
| | | | | 500m | GT15-RS4-9S | GT27 GT25 | |

*1 Product manufactured by Fuji Electric Co., Ltd. For details of the product, contact Fuji Electric Co., Ltd.

*2 Including the cable length of the option devices.

## 4.2.4 System Configuration for connecting to MICREX-SX SPH




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | Generalpurpose interface module*1 | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| MICREX-SX SPH | - | RS-232 | NP4H-CB2 *1 + NW0H-CNV*1 | 2m | - (Built into GOT) | GT27 GT25 | 1 GOT for 1 PLC |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | NP1L-RS1 NP1L-RS2 NP1L-RS3 | RS-232 | User preparing RS-232 connection diagram 2) | 15m | - (Built into GOT) | GT27 GT25 | 1 GOT for Communication port of general-purpose communication module |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | NP1L-RS1 NP1L-RS4 | RS-485 | User preparing RS-485 connection diagram 2) | 1000m | - (Built into GOT) | GT27 GT25 | |
| | | | | | GT15-RS4-9S | GT27 GT25 | |
| | NP1L-RS5 | RS-485s | User preparing RS-485 connection diagram 3) | 1000m | - (Built into GOT) | GT27 GT25 | |
| | | | | | GT15-RS4-9S | GT27 GT25 | |

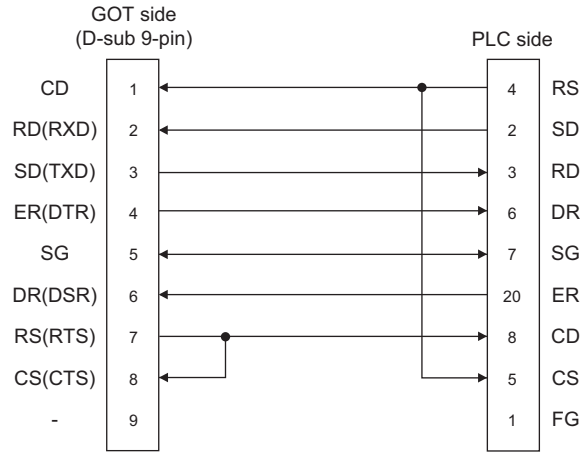
*1 Product manufactured by Fuji Electric Co., Ltd. For details of the product, contact Fuji Electric Co., Ltd.

## 4.2.5 Connection Diagram

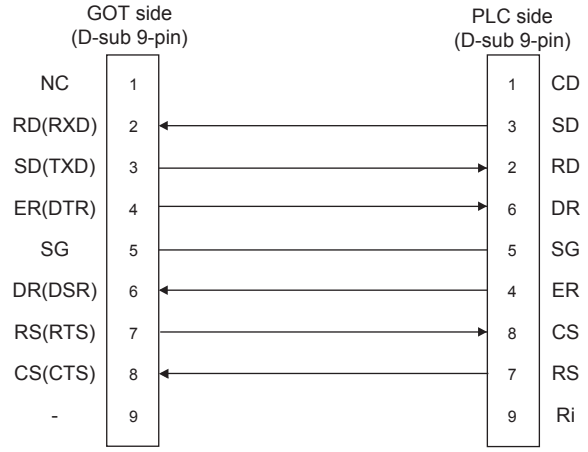
The following diagram shows the connection between the GOT and the PLC.

### ■ RS-232 cable

(1) RS-232 connection diagram 1)




(2) RS-232 connection diagram 2)




### ■ Precautions when preparing a cable

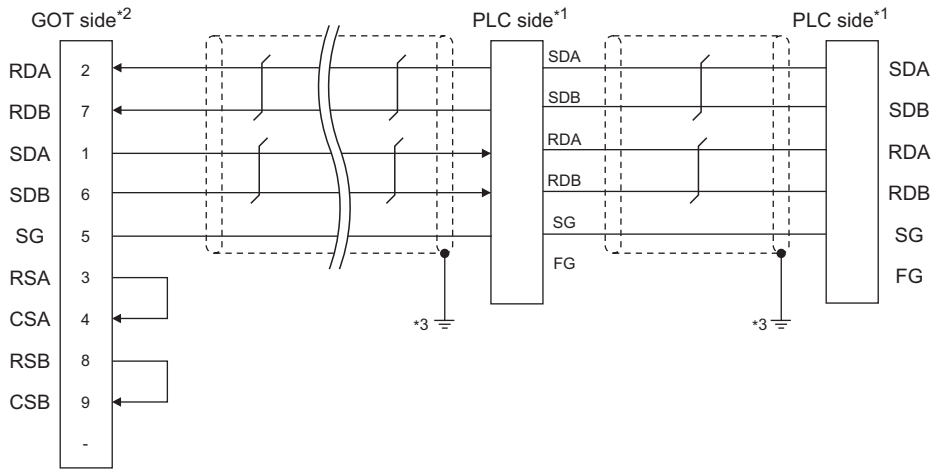
(1) Cable length
The length of the RS-232 cable must be 15m or less.

(2) GOT side connector
For the GOT side connector, refer to the following.
☞ 1.4.1GOT connector specifications

(3) FUJI PLC side connector
Use the connector compatible with the FUJI PLC side module.
For details, refer to the user's FUJI PLC manual.

## ■ RS-485 cable

### (1) RS-485 connection diagram 1)

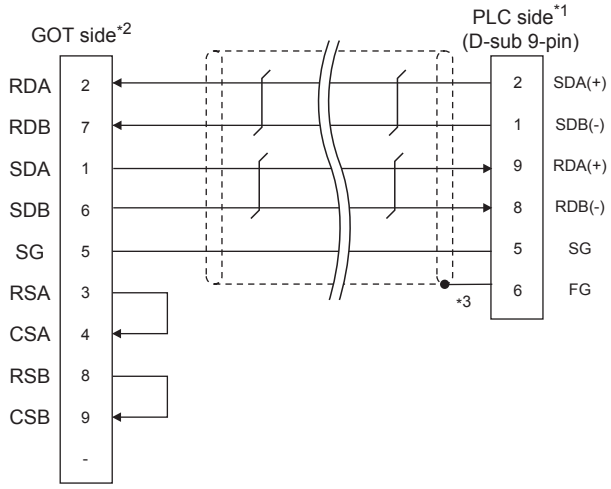



*1 Turn ON the terminating switch of a interface converter which will be a terminal.
*2 Set the terminating resistor of GOT side which will be a terminal.

■ Connecting terminating resistors

*3 Connect FG grounding to the appropriate part of a cable shield line.

### (2) RS-485 connection diagram 2)

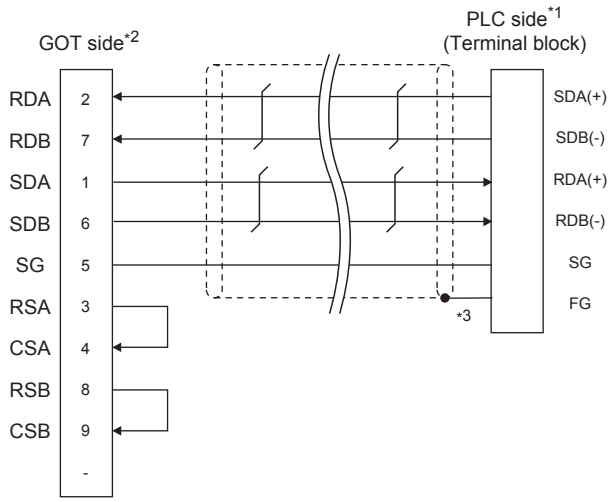



*1 Turn ON the terminating switch of a interface converter which will be a terminal.
*2 Set the terminating resistor of GOT side which will be a terminal.

■ Connecting terminating resistors

*3 Make sure to pull the cable shield line into inside the connector cover, and treat the line end for obtaining shield effect.

(3) RS-485 connection diagram 3)




*1 Turn ON the terminating switch of a interface converter which will be a terminal.

*2 Set the terminating resistor of GOT side which will be a terminal.

☞ ■ Connecting terminating resistors

*3 Make sure to pull the cable shield line into inside the connector cover, and treat the line end for obtaining shield effect.

## ■ Precautions when preparing a cable

(1) Cable length
The length of the RS-485 cable must be within the maximum distance..

(2) GOT side connector
For the GOT side connector, refer to the following.

☞ 1.4.1GOT connector specifications

(3) FUJI PLC side connector
Use the connector compatible with the FUJI PLC side module.
For details, refer to the user's FUJI PLC manual.

## ■ Connecting terminating resistors

(1) GOT side
Set the terminating resistor setting switch of the GOT main unit to "100 OHM".
For the procedure to set the terminating resistor, referFor the procedure to set the terminating resistor, refer to the following.

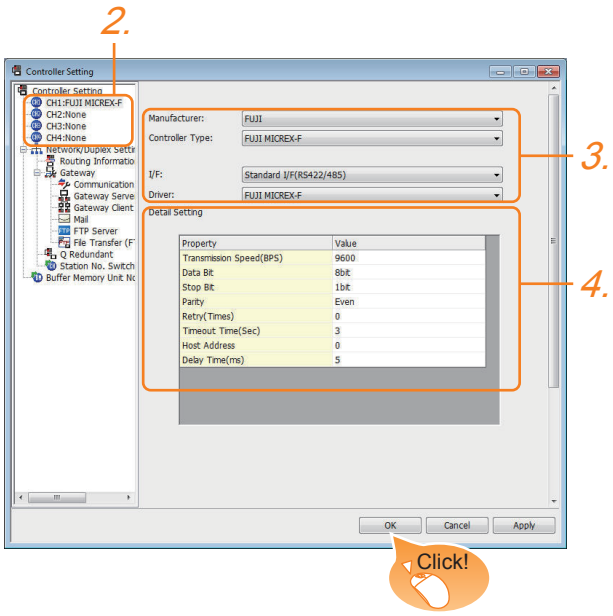
☞ 1.4.3Terminating resistors of GOT

(2) FUJI PLC side
When connecting a FUJI PLC to the GOT, a terminating resistor must be connected.

☞ 4.2.7 PLC Side Setting

## ■ Setting communication interface (Communication settings)

Set the channel of the connected equipment.




1. Select [Common] → [Controller Setting] from the menu.
2. The Controller Setting window is displayed. Select the channel to be used from the list menu.
3. Set the following items.
   - Manufacturer: FUJI
   - Controller Type: Set either of the following
     - FUJI MICREX-F Series
     - FUJI MICREX-SX SPH
   - I/F: Interface to be used
   - Driver: Set either of the following.
     - FUJI MICREX-F Series
     - FUJI MICREX-SX SPH
4. The detailed setting is displayed after Manufacturer, Controller Type, I/F, and Driver are set.
   Make the settings according to the usage environment.
   ■ Communication detail settings

Click the [OK] button when settings are completed.

**POINT**

The settings of connecting equipment can be confirmed in [I/F Communication Setting].
For details, refer to the following.
1.1.2 I/F communication setting

## ■ Communication detail settings

Make the settings according to the usage environment.
(For FUJI MICREX-F)

| Property | Value |
|---|---|
| Transmission Speed(BPS) | 9600 |
| Data Bit | 8 bit |
| Stop Bit | 1 bit |
| Parity | Even |
| Retry(Times) | 0 |
| Timeout Time(Sec) | 3 |
| Host Address | 0 |
| Delay Time(ms) | 5 |

| Item | Description | Range |
|---|---|---|
| Transmission Speed | Set this item when change the transmission speed used for communication with the connected equipment. (Default: 9600bps) | 9600bps, 19200bps, 38400bps, 57600bps, 115200bps |
| Data Bit | Set this item when change the data length used for communication with the connected equipment. (Default: 8bits) | 7bits/8bits |
| Stop Bit | Specify the stop bit length for communications. (Default: 1bit) | 1bit/2bits |
| Parity | Specify whether or not to perform a parity check, and how it is performed during communication. (Default: Even) | None<br>Even<br>Odd |
| Retry | Set the number of retries to be performed when a communication error occurs. (Default: 0time) | 0 to 5times |
| Timeout Time | Set the time period for a communication to time out. (Default: 3sec) | 1 to 30sec |
| Host Address | Specify the host address (station No. of the GOT to which the PLC is connected) in the connected network. (Default: 0) | 0 to 99 |
| Delay Time | Set this item to adjust the transmission timing of the communication request from the GOT. (Default: 5ms) | 0 to 300ms |

(For FUJI MICREX-SX SPH)

| Property | Value |
|---|---|
| Transmission Speed(BPS) | 38400 |
| Data Bit | 8bit |
| Stop Bit | 1bit |
| Parity | Even |
| Retry(Times) | 3 |
| Timeout Time(Sec) | 3 |
| Delay Time(ms) | 0 |

| Item | Description | Range |
|---|---|---|
| Transmission Speed*1 | Set this item when change the transmission speed used for communication with the connected equipment. (Default: 38400bps) | 9600bps, 19200bps, 38400bps, 57600bps, 115200bps |
| Data Bit*1 | Set this item when change the data length used for communication with the connected equipment. (Default: 8bits) | 7bits/8bits |
| Stop Bit*1 | Specify the stop bit length for communications. (Default: 1bit) | 1bit/2bits |
| Parity*1 | Specify whether or not to perform a parity check, and how it is performed during communication. (Default: Even) | None<br>Even<br>Odd |
| Retry | Set the number of retries to be performed when a communication error occurs. (Default: 3time) | 0 to 5times |
| Timeout Time | Set the time period for a communication to time out. (Default: 3sec) | 1 to 30sec |
| Delay Time | Set this item to adjust the transmission timing of the communication request from the GOT. (Default: 0ms) | 0 to 300ms |

*1 Leave the setting as default. If the set value is changed, communication with the PLC is disabled.

**POINT**

(1) Host address
When connecting to PLC by RS-232 communication, set the Host Address to "0".

(2) Communication interface setting by the Utility
The communication interface setting can be changed on the Utility's [Communication Settings] after writing [Communication Settings] of project data.
For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

(3) Precedence in communication settings
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

POINT

FUJI PLC

For details of FUJI PLCs, refer to the following manuals.

☞ FUJI PLC user's Manual

| Model name | | Refer to |
|---|---|---|
| RS-232C interface card | NV1L-RS2 | n |
| General-purpose interface module | NC1L-RS2 | |
| | NC1L-RS4 | n |
| | FFU120B | n |
| RS-232C/485 interface capsule | FFK120A-C10 | n |

## ■ Connecting to NV1L-RS2, NC1L-RS2

(1) Communication settings

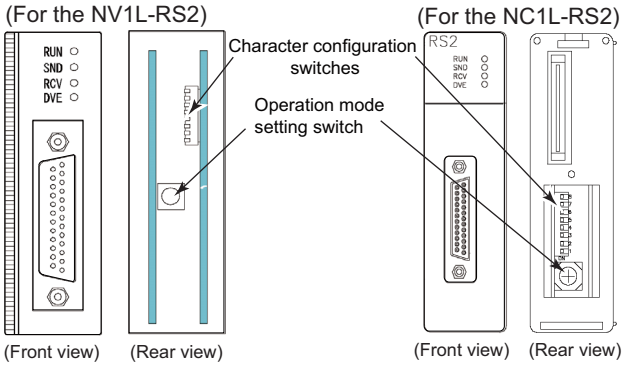
Make the communication settings using setting switches.

| Item | Set value |
|---|---|
| MODE | Command-setting-type start-stop synchronization, nonsequence format |
| Transmission speed*1 | 9600bps, 19200bps |
| Data bit*1 | 8bits or 7bits |
| Parity bit*1 | Even or Odd |
| | Done, None |
| Stop bit*1 | 1bit, 2bits |
| Initializing method | By switch |

*1 Adjust the settings with GOT settings.

(2) Settings by switch

Make the communication settings using each setting switch.



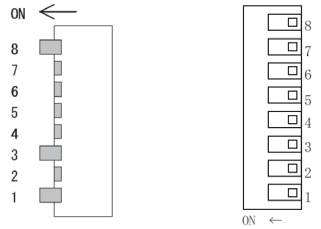

(a) Setting of the MODE

Make the MODE settings using the MODE switch.

| MODE | Switch position | |
|---|---|---|
| | NV1L-RS2 | NC1L-RS2 |
| Command-setting-type start-stop synchronization, nonsequence format | 1 | 1 |

(b) Setting of Transmission speed, Stop bit, Data bit, Parity bit, Initializing method

For the NV1L-RS2 For the NC1L-RS2




| Setting item | Set value | Switch No. | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Transmission speed | 9600bps | ON | OFF | ON | | | | | |
| | 19200bps | OFF | ON | ON | | | | | |
| Stop bit | 1bit | | | | ON | | | | |
| | 2bits | | | | OFF | | | | |
| Data bit | 7bits | | | | | ON | | | |
| | 8bits | | | | | OFF | | | |
| Parity bit | Even | | | | | | ON | | |
| | Odd | | | | | | OFF | | |
| | Done | | | | | | | ON | |
| | None | | | | | | | OFF | |
| Initializing method | By switch | | | | | | | | ON |

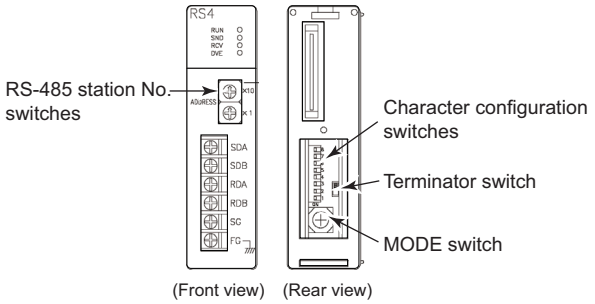
## ■ Connecting to NC1L-RS4

(1) Communication settings
Make the communication settings using setting switches.

| Item | Set value |
|---|---|
| MODE | Command-setting-type start-stop synchronization, nonsequence format |
| Transmission speed*1 | 9600bps, 19200bps |
| Data bit*1 | 8bits or 7bits |
| Parity bit*1 | Even or Odd |
| | Done, None |
| Stop bit*1 | 1bit, 2bits |
| Initializing method | By switch |
| Station No.*1*2 | 0 to 99 |
| Terminating resistor*3 | ON or OFF |

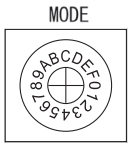
*1 Adjust the settings with GOT settings.
*2 Avoid duplication of the station No. with any of the other units.
*3 Turn ON the terminating switch of a general-purpose interface module which will be a terminal.

(2) Settings by switch
Make the communication settings using each setting switch.



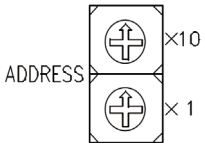

(a) Setting of the MODE
Make the MODE settings using the MODE switch.

| MODE | Switch position |
|---|---|
| Command-setting-type start-stop synchronization, nonsequence format | 3 |



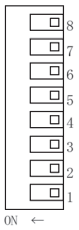
(b) Setting of the station No.
Make the station No. using RS-485 station No. switches.

| Station No. |
|---|
| 0 to 99 |




(c) Connecting terminating resistors
Turn ON/OFF the terminating resistor using RS-485 terminating resistor ON/OFF switch.

(d) Setting of Transmission speed, Stop bit, Data bit, Parity bit, Initializing method
Make the settings using the character configuration switches.




| Setting item | Set value | Switch No. | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Transmission speed | 9600bps | ON | OFF | ON | | | | | |
| | 19200bps | OFF | ON | ON | | | | | |
| Stop bit | 1bit | | | | ON | | | | |
| | 2bits | | | | OFF | | | | |
| Data bit | 7bits | | | | | ON | | | |
| | 8bits | | | | | OFF | | | |
| Parity bit | Even | | | | | | ON | | |
| | Odd | | | | | | OFF | | |
| | Done | | | | | | | ON | |
| | None | | | | | | | OFF | |
| Initializing method | By switch | | | | | | | | ON |

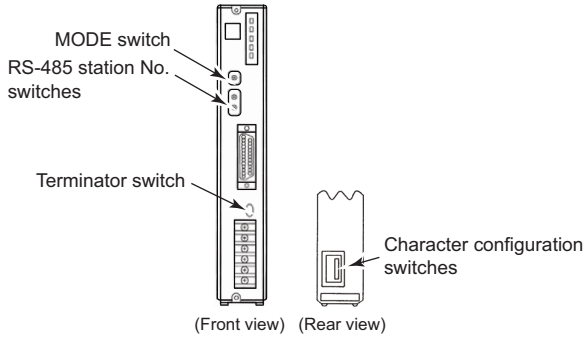
## ■ Connecting to FFU120B

(1) Communication settings
Make the communication settings using setting switches.

| Item | Set value |
|---|---|
| MODE | Command-setting-type start-stop synchronization, nonsequence format |
| Transmission speed*1 | 9600bps, 19200bps |
| Data bit*1 | 8bits or 7bits |
| Parity bit*1 | Even or Odd |
| | Done, None |
| Stop bit*1 | 1bit, 2bits |
| Initializing method | By switch |
| Station No.*1*2 | 0 to 99 |
| Terminating resistor*3 | ON or OFF |

*1 Adjust the settings with GOT settings.
*2 Avoid duplication of the station No. with any of the other units.
*3 Turn ON the terminating switch of a general-purpose interface module which will be a terminal.

(2) Settings by switch
Make the communication settings using each setting switch.

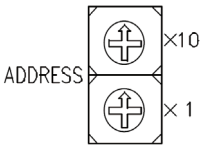



(a) Setting of the MODE
Make the MODE settings using the MODE switch.

| MODE | Switch position |
|---|---|
| Command-setting-type start-stop synchronization, nonsequence format RS-232C 1:1 | 1 |
| Command-setting-type start-stop synchronization, nonsequence format RS-232C 1:1, and RS-485 1:N | 2 |
| Command-setting-type start-stop synchronization, nonsequence format RS-485 1:N | 3 |

(b) Setting of the station No.
Make the station No. using RS-485 station No. switches.

| Station No. |
|---|
| 0 to 99 |




(c) Connecting terminating resistors
Turn ON/OFF the terminating resistor using RS-485 terminating resistor ON/OFF switch.

(d) Setting of Transmission speed, Stop bit, Data bit, Parity bit, Initializing method
Make the settings using the character configuration switches.

| Setting item | Set value | Switch No. | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Transmission speed | 9600bps | ON | OFF | ON | | | | | |
| | 19200bps | OFF | ON | ON | | | | | |
| Stop bit | 1bit | | | | ON | | | | |
| | 2bits | | | | OFF | | | | |
| Data bit | 7bits | | | | | ON | | | |
| | 8bits | | | | | OFF | | | |
| Parity bit | Even | | | | | | ON | | |
| | Odd | | | | | | OFF | | |
| | Done | | | | | | | ON | |
| | None | | | | | | | OFF | |
| Initializing method | By switch | | | | | | | | ON |

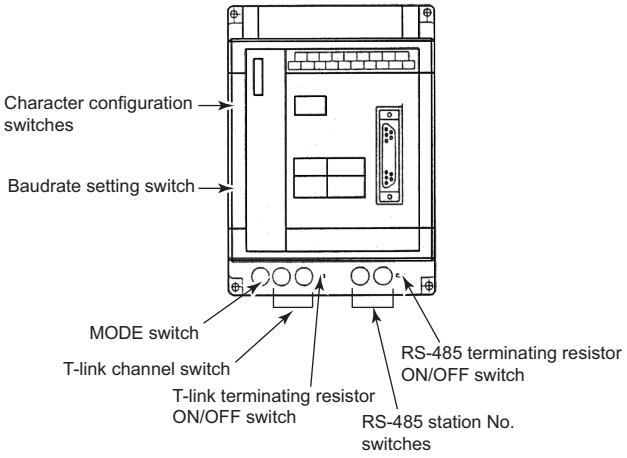
## ■ Connecting to FFK120A-C10

(1) Communication settings
Make the communication settings using setting switches.

| Item | Set value |
|---|---|
| MODE*4 | Command-setting-type start-stop synchronization, nonsequence format RS-232C 1:1 |
| | Command-setting-type start-stop synchronization, nonsequence format RS-232C 1:1, and RS-485 1:N |
| | Command-setting-type start-stop synchronization, nonsequence format RS-485 1:N |
| Transmission speed*1 | 9600bps, 19200bps |
| Data bit*1 | 8bits or 7bits |
| Parity bit*1 | Even or Odd |
| | Done, None |
| Stop bit*1 | 1bit, 2bits |
| Initializing method | By switch |
| Station No.*1*2 | 0 to 99 |
| Terminating resistor*3 | ON or OFF |
| T-link channel switch | FUJI PLC user's Manual |
| T-link terminating resistor | |

*1 Adjust the settings with GOT settings.
*2 Avoid duplication of the station No. with any of the other units.
*3 Turn ON the terminating switch of a general-purpose interface module which will be a terminal.
*4 Set as necessary.

(2) Settings by switch
Make the communication settings using each setting switch.

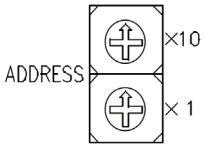


(a) Setting of the MODE
Make the MODE settings using the MODE switch.

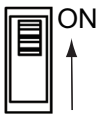
| MODE | Switch position |
|---|---|
| Command-setting-type start-stop synchronization, nonsequence format RS-232C 1:1 | 1 |
| Command-setting-type start-stop synchronization, nonsequence format RS-232C 1:1, and RS-485 1:N | 2 |
| Command-setting-type start-stop synchronization, nonsequence format RS-485 1:N | 3 |

(b) Setting of the station No.
Make the station No. using RS-485 station No. switches.

| Station No. |
|---|
| 0 to 99 |




(c) Connecting terminating resistors
Turn ON/OFF the terminating resistor using RS-485 terminating resistor ON/OFF switch.




(d) Setting of Stop bit, Data bit, Parity bit, Initializing method
Make the settings using the character configuration switches.

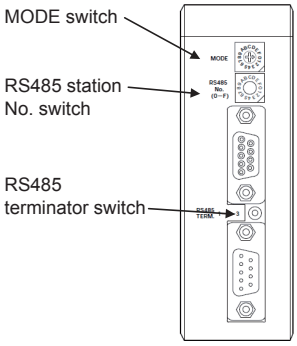
| Setting item | Set value | Switch No. 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| disable | | OFF | OFF | OFF | | | | | |
| Stop bit | 1bit | | | | ON | | | | |
| | 2bits | | | | OFF | | | | |
| Data bit | 7bits | | | | | ON | | | |
| | 8bits | | | | | OFF | | | |
| Parity bit | Even | | | | | | ON | | |
| | Odd | | | | | | OFF | | |
| | Done | | | | | | | ON | |
| | None | | | | | | | OFF | |
| Initializing method | By switch | | | | | | | | ON |

(e) Transmission speed settings
Make the settings using the baudrate setting switches.

| Setting item | Set value | Switch No. 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| Transmission speed | 9600bps | OFF | OFF | OFF | OFF | OFF | ON | OFF | OFF |
| | 19200bps | OFF | OFF | OFF | OFF | OFF | OFF | ON | OFF |

## ■ Connecting to NP1L-RS1, NP1L-RS2, NP1L-RS3, NP1L-RS4, NP1L-RS5

(1) Communication settings
Make the communication settings using setting switches.



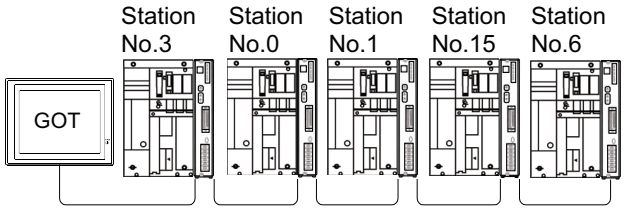

| Switch | Item | Set value |
|---|---|---|
| MODE switch | MODE | 1 to 3*1 |
| RS485 station No. switch | Station No. | *2 |
| RS485 terminator switch | Terminator | *3 |

*1 Set the MODE switch so that the communication port of the general communication module to be connected to the GOT operates as a loader.
*2 The switch is not used for connection with the GOT.
*3 Turn ON the terminating switch of the general communication module which will be a terminal.

## 4.2.8 Station number setting

Set each station number so that no station number overlaps.

The station number can be set without regard to the cable connection order. There is no problem even if station numbers are not consecutive.




Examples of station number setting

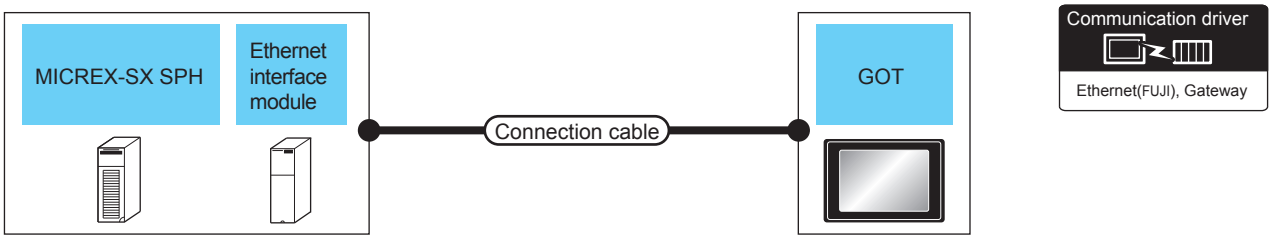
(1) Direct specification

Specify the station No. of the PLC to be changed when setting device.

| Specification range |
|---|
| 0 to 99 |

# 4.3 Ethernet Connection

## 4.3.1 System Configuration for connecting to MICREX-SX SPH




| PLC | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Model name | Ethernet interface module*3 | Cable model*1 Connection diagram number | Max. distance*2 | Option device | Model | |
| SPH200 SPH300 SPH2000 SPH3000 | NP1L-ET1 | • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP): Category 3, 4, and 5<br>• 100BASE-TX Shielded twisted pair cable (STP): Category 5 and 5e | 100m | - (Built into GOT) | GT27 GT25 GT23 | When PLC: GOT is 1: N The following shows the number of GOTs for 1 PLC 128 or less |
| | | | | | | When PLC: GOT is 1: N The following shows the number of GOTs for 1 PLC 8 or less |
| SPH2000 SPH3000 | - | | 100m | - (Built into GOT) | GT27 GT25 GT23 | When PLC: GOT is 1: N The following shows the number of GOTs for 1 PLC 128 or less |
| | | | | | | When PLC: GOT is 1: N The following shows the number of GOTs for 1 PLC 10 or less |

*1 The destination connected with the twisted pair cable varies with the configuration of the applicable Ethernet network system.
Connect to the Ethernet module, hub, transceiver or other system equipment corresponding to the applicable Ethernet network system.
Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standards.

*2 A length between a hub and a node.
The maximum distance differs depending on the Ethernet device to be used.
The following shows the number of the connectable nodes when a repeater hub is used.
- 10BASE-T: Max. 4 nodes for a cascade connection (500m)
- 100BASE-TX: Max. 2 nodes for a cascade connection (205m)

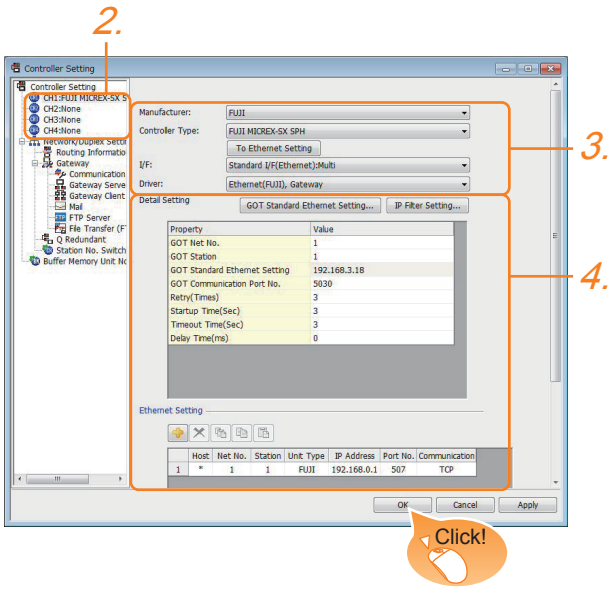
When switching hubs are used, the cascade connection between the switching hubs has no logical limit for the number of cascades.
For the limit, contact the switching hub manufacturer.

*3 Product manufactured by Fuji Electric Co., Ltd. For details of the product, contact Fuji Electric Co., Ltd.

## 4.3.2 GOT Side Settings

### ■ Setting communication interface (Communication settings)

Set the channel of the connected equipment.




1. Select [Common] → [Controller Setting] from the menu.
2. The Controller Setting window is displayed. Select the channel to be used from the list menu.
3. Set the following items.
   - Manufacturer: FUJI
   - Controller Type: FUJI MICREX-SX SPH
   - I/F: Interface to be used
   - Driver: Ethernet (FUJI), Gateway
4. The detailed setting is displayed after Manufacturer, Controller Type, I/F, and Driver are set.
   Make the settings according to the usage environment.

   ☞ ■ Communication detail settings

Click the [OK] button when settings are completed.

**POINT**

The settings of connecting equipment can be confirmed in [I/F Communication Setting].
For details, refer to the following.

☞ 1.1.2 I/F communication setting

### ■ Communication detail settings

Make the settings according to the usage environment.

| Property | Value |
|---|---|
| GOT Net No. | 1 |
| GOT Station | 1 |
| GOT Standard Ethernet Setting | 192.168.3.18 |
| GOT Communication Port No. | 5030 |
| Retry(Times) | 3 |
| Startup Time(Sec) | 3 |
| Timeout Time(Sec) | 3 |
| Delay Time(ms) | 0 |

| Item | Description | Range |
|---|---|---|
| GOT Net No. | Set the network No. of the GOT. (Default: 1) | 1 to 239 |
| GOT Station*1 | Set the station No. of the GOT. (Default: 1) | 1 to 254 |
| GOT Ethernet Setting | Set the GOT IP address, subnet mask, default gateway, peripheral S/W communication port No., transparent port No. | |
| GOT Communication Port No. | Set the GOT port No. for the connection with the Ethernet module. (Default: 5030) | 1024 to 5010, 5014 to 65534 (Except for 5011, 5012, 5013 and 49153) |
| Retry | Set the number of retries to be performed when a communication timeout occurs. When receiving no response after retries, the communication times out. (Default: 3times) | 0 to 5times |
| Startup Time | Specify the time period from the GOT startup until GOT starts the communication with the PLC CPU. (Default: 3sec) | 3 to 255sec |
| Timeout Time | Set the time period for a communication to time out. (Default: 3sec) | 1 to 90sec |
| Delay Time | Set the delay time for reducing the load of the network/destination PLC. (Default: 0ms) | 0 to 10000(ms) |

*1 Each of [GOT Station] set in the communication detail setting and [Station] set in the Ethernet setting must be set to different station numbers.

☞ ■ Ethernet setting

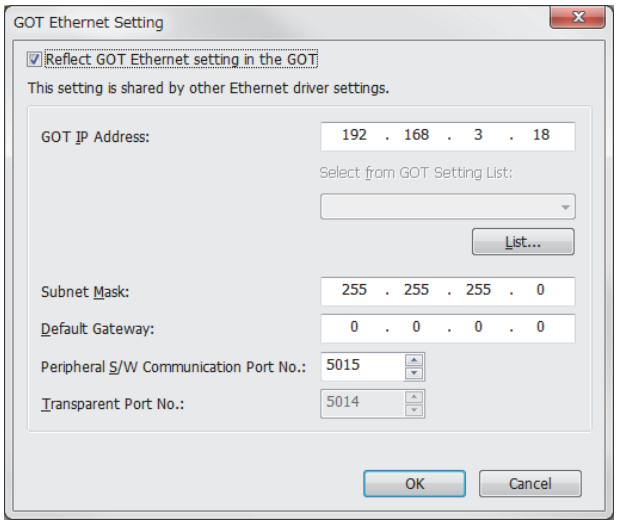
**POINT**

(1) Communication interface setting by the Utility
The communication interface setting can be changed on the Utility's [Communication setting] after writing [Communication Settings] of project data.
For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

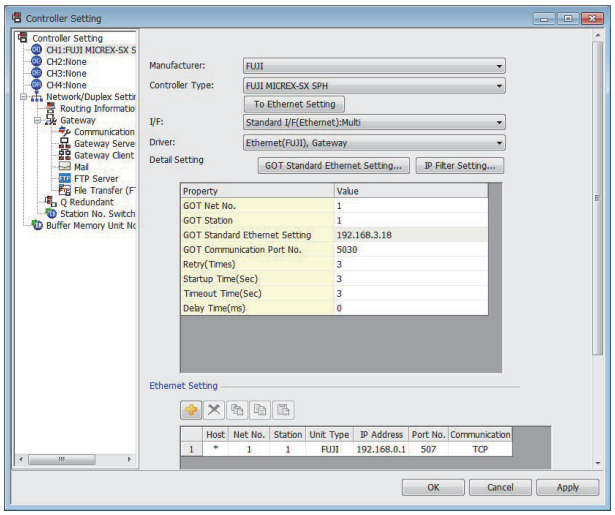
(2) Precedence in communication settings
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

## ■ GOT Ethernet setting




| Item | Description | Range |
|---|---|---|
| GOT IP Address | Set the IP address of the GOT. (Default: 192.168.0.18) | 0.0.0.0 to 255.255.255.255 |
| Subnet Mask | Set the subnet mask for the sub network.(Only for connection via router) If the sub network is not used, the default value is set. (Default: 255.255.255.0) | 0.0.0.0 to 255.255.255.255 |
| Default Gateway | Set the router address of the default gateway where the GOT is connected.(Only for connection via router) (Default: 0.0.0.0) | 0.0.0.0 to 255.255.255.255 |
| Peripheral S/W Communication Port No. | Set the GOT port No. for the S/W communication. (Default: 5015) | 1024 to 5010<br>5014 to 65534<br>(Except for 5011, 5012, 5013 and 49153) |
| Transparent Port No. | Set the GOT port No. for the transparent function. (Default: 5014) | 1024 to 5010<br>5014 to 65534<br>(Except for 5011, 5012, 5013 and 49153) |

## ■ Ethernet setting



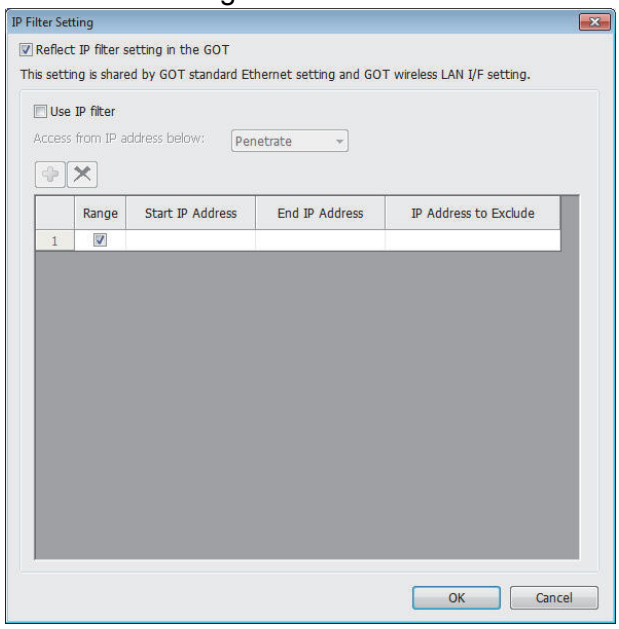

| Item | Description | Set value |
|---|---|---|
| Host | The host is displayed. (The host is indicated with an asterisk (*).) | — |
| Net No. | Set the network No. of the connected Ethernet module. (Default: blank) | 1 to 239 |
| Station*2 | Set the station No. of the connected Ethernet module. (Default: blank) | 1 to 254 |
| Type | FUJI (fixed) | FUJI (fixed) |
| IP address*1 | Set the IP address of the connected Ethernet module. (Default: 192.168.0.1 | PLC side IP address |
| Port No. | Set the port No. of the connected Ethernet module. (Default: 507) | 251 to 65531 |
| Communication format | TCP (fixed) | TCP (fixed) |

*1 Connection with the PLC is unavailable if the IP address is the default value. Set the value to the IP address of the PLC to be connected.

*2 Each of [GOT Station] set in the communication detail setting and [Station] set in the Ethernet setting must be set to different station numbers.

■ Communication detail settings

■ IP Filter Setting




To improve security, the GOT 2000 series supports the IP Filter Setting.
For details on the IP Filter Setting, refer to the following manual.

☞ GT Designer3 (GOT2000) Help

## 4.3.3 PLC side setting (MICREX-SX SPH)

POINT

FUJI PLC

For details of FUJI PLCs, refer to the following manuals.

☞ FUJI PLC user's Manual

■ Setting the IP address and self port reference No.

Set the IP address and self port reference No. using a peripheral tool of the PLC.

| Item | Set value | Range |
|---|---|---|
| IP Address*1 | [ ].[ ].[ ].[ ] | PLC side IP address |
| Subnet Mask | [ ].[ ].[ ].[ ] | PLC side setting |
| Default Gateway IP Address | [ ].[ ].[ ].[ ] | |
| Self port reference No.*2 | 0 to 65280 | |

*1 Adjust the settings with GOT settings.
☞ 4.3.2 ■ Ethernet setting

*2 Make sure that "Self port reference No. + 251" is equivalent to the port No. in the GOT.
☞ 4.3.2 ■ Ethernet setting

# 4.4 Device Range that Can Be Set

The device ranges of controller that can be used for GOT are as follows.

Note that the device ranges in the following tables are the maximum values that can be set in GT Designer3.

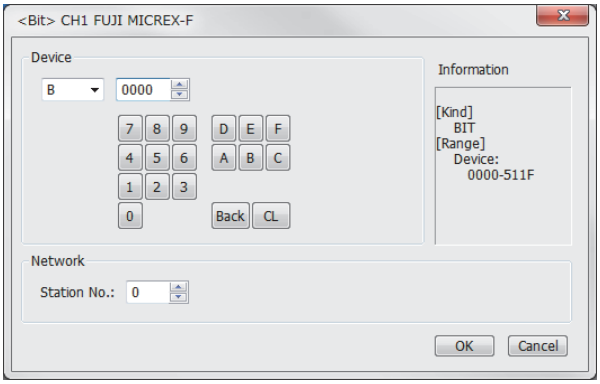
The device specifications of controllers may differ depending on the models, even though belonging to the same series.

Please make the setting according to the specifications of the controller actually used.

When a non-existent device or a device number outside the range is set, other objects with correct device settings may not be monitored.

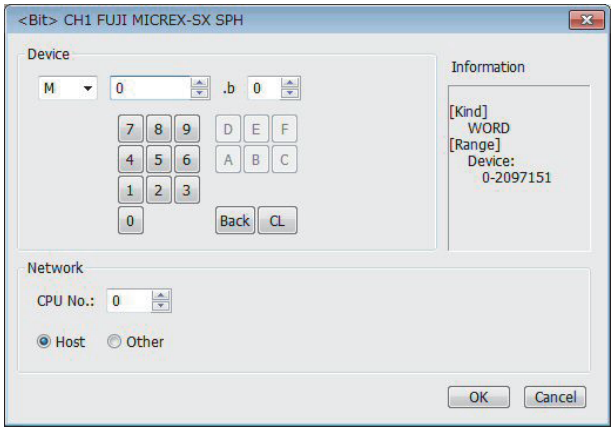
## ■ Setting item

### (1) For FUJI MICREX-F




| Item | Information | |
|---|---|---|
| Device | Set the device name, device number, and bit number.<br>The bit number can be set only when specifying the bit of word device.<br>The uppermost bit is b0 and the lowermost bit is b15. | |
| Information | Displays the device type and setting range which are selected in [Device]. | |
| Network | Set the monitor target of the set device. | |
| | Station No. | Select this item when monitoring the PLC of the specified station No. |

### (2) FUJI MICREX-SX SPH

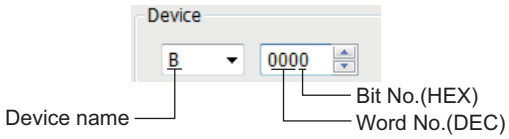



| Item | Description | |
|---|---|---|
| Device | Set the device name, device number, and bit number.<br>The bit number can be set only when specifying the bit of word device.<br>The uppermost bit is b0 and the lowermost bit is b15. | |
| Information | Displays the device type and setting range which are selected in [Device]. | |
| Network | Set the monitor target of the set device. | |
| | CPU No. | Set the CPU No. of the controller. |
| | Host | Select this item for monitoring the host PLC. |
| | Other | Select this for monitoring other PLCs.<br>After selecting, set the station number of the PLC to be monitored.<br>NW No.: Set the network No.<br>Station No.: Set the station No. |

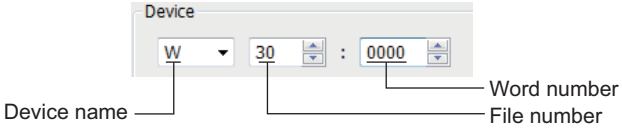
**POINT**

Device settings of FUJI FA PLC

(1) When setting a bit device
Set the device using the format of word number (DEC) + bit No. (0 to F (HEX)).




(2) When setting a word device
For direct access (W24) and user file (W30 to W109, W9), set as follows.



## 4.4.1 FUJI MICREX-F Series

| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | I/O relay (B) | B0000 to B511F | Decimal + Hexadecimal |
| | Auxiliary relay (M) | M0000 to M511F | |
| | Keep relay (K) | K0000 to K063F | |
| | Special relay (F)*1 | F0000 to F125F | |
| | Annunciator relay (A) | A0000 to A045F | |
| | Differential relay (D) | D0000 to D063F | |
| | Link memory (L) | L0000 to L511F | |
| | Timer output (0.01s) (T) | T000 to T511 | Decimal |
| | Timer output (0.1s) (T) | T512 to T999 | |
| | Counter output (C) | C000 to C511 | |
| | Word device bit*5 | Specified bit of the following word devices Direct access, user file | — |
| Word device | I/O relay (WB) | WB000 to WB511 | Decimal |
| | Auxiliary relay (WM) | WM000 to WM511 | |
| | Keep relay (WK) | WK000 to WK063 | |
| | Special relay (WF)*1 | WF000 to WF125 | |
| | Annunciator relay (WA) | WA000 to WA045 | |
| | Differential relay (WD) | WD000 to WD063 | Decimal |
| | Link memory (WL) | WL000 to WL511 | |
| | Direct access (W24)*6*7 | W24:0000 to W24:0255 | |
| | User file (W30)*4*6*7<br>User file (W31)*4*6*7<br>:<br>User file (W108)*4*6*7<br>User file (W109)*4*6*7 | W30:0000 to W30:4095<br>W31:0000 to W31:4095<br>:<br>W108:0000 to W108:4095<br>W109:0000 to W109:4095 | Decimal |
| | Data memory (BD)*2 | BD0 to BD4095 | |
| | Timer set value (0.01s) (TS)*2*3 | TS0 to TS511 | |
| | Timer current value (0.01s) (TR)*2*3 | TR0 to TR511 | |
| | Timer current value (0.1s) (W9)*2*3 | W9:0000 to W9:0487 | |
| | Counter set value (CS)*2*3 | CS0 to CS511 | |
| | Counter current value (CR)*2*3 | CR0 to CR511 | |

*1 Only reading is possible.
*2 Only 32-bit (2-word) designation is allowed.
*3 Decimal points are not displayed.
*4 To read/write data from/to a user file, set SI data for the data format of the PLC CPU and 16 bits for data length on GT Designer3.
With any setting other than the above, the PLC does not operate normally.

| Data format of the PLC CPU | GT Designer3 setting |
|---|---|
| SI (Binary 16-bit length) | Device data bit: 16 bits |
| DI (Binary 32-bit length) | Cannot be used |
| BD (8-digit BCD) | Cannot be used |

*5 As bit specification of a word device is performed after the GOT reads the value, do not change the value in the sequence program during this period.
*6 When it is used with bit specification (bit specification of word device), the offset function cannot be used.
*7 When bit specification (bit specification of word device) is performed, the uppermost bit is b0 and the lowermost bit is b15.

Higher Lower

| b0 | b1 | ..... | b14 | b15 |
|---|---|---|---|---|

## 4.4.2 FUJI MICREX-SX Series

| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | Word device bit*1 | Specified bit of the following word devices Direct access, User file | — |
| Word device | Non-retain memory(M)*2*3 | M0 to M2097151 | Decimal |
| | Retain memory (L)*2*3 | L0 to L2097151 | |
| | System memory (SM)*2*3 | SM0 to SM511 | |

*1 As bit specification of a word device is performed after the GOT reads the value, do not change the value in the sequence program during this period.
*2 When it is used with bit specification (bit specification of word device), the offset function cannot be used.
*3 When bit specification (bit specification of word device) is performed, the uppermost bit is b0 and the lowermost bit is b15.

Higher Lower

| b0 | b1 | ..... | b14 | b15 |
|---|---|---|---|---|

# 4.5 Precautions

## ■ Station No. settings of the PLC side

In the system configuration, the PLC with the station number set with the host address must be included.
For details of host address setting, refer to the following.

☞ 4.2.6 ■ Communication detail settings

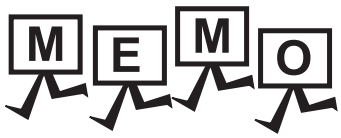
## ■ System configuration of the PLC side

GOT can communicate in a system configuration where NC1L-PS4, FFU120B and FFK120A-C10 are mixed.
When using FFK120A-C10, the number of PLCs that can communicate is at most 6 units.

## ■ GOT clock control

The GOT clock function is available only for the PLC with the station number set with the host address.
For details of host address setting, refer to the following.

☞ 4.2.6 ■ Communication detail settings


MEMO

# 5

# CONNECTION TO FUJI TEMPERATURE CONTROLLER


5.1 Connectable Model List . . . . . 5 - 2
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5.3 Connection Diagram . . . . . 5 - 7
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5.5 Temperature Controller Side Setting . . . . . 5 - 14
5.6 Device Range that Can Be Set . . . . . 5 - 19
5.7 Precautions . . . . . 5 - 20

# 5. CONNECTION TO FUJI TEMPERATURE CONTROLLER

## 5.1 Connectable Model List

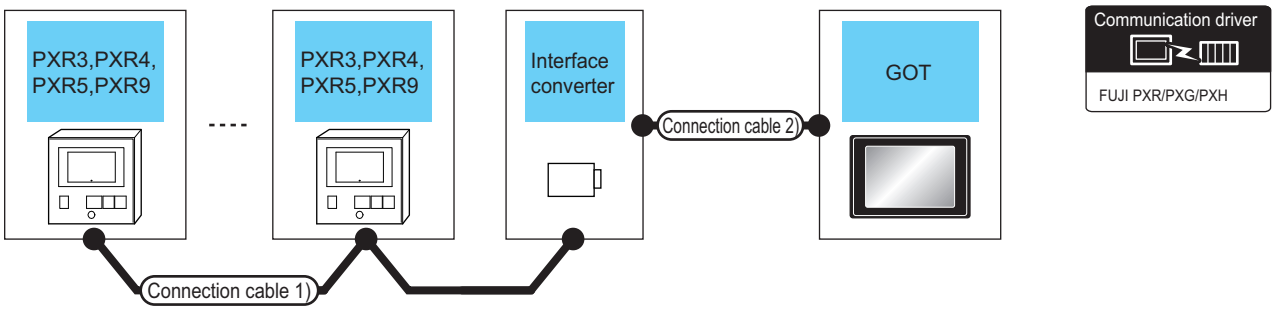
The following table shows the connectable models.

| Series | Model name | Clock | Communication Type | Connectable model | Refer to |
|---|---|---|---|---|---|
| Micro Controller X | PXR3 | × | RS-232 | GT27 GT25 GT23 | 5.2.1 |
| | PXR4 | | | | |
| | PXR5 | | | | |
| | PXR9 | | | | |
| | PXG4 | × | RS-485 | GT27 GT25 GT23 | 5.2.2 |
| | PXG5 | | | | |
| | PXG9 | | | | |
| | PXH9 | | | | |

# 5.2 System Configuration

## 5.2.1 Connecting to PXR3, PXR4, PXR5 or PXR9

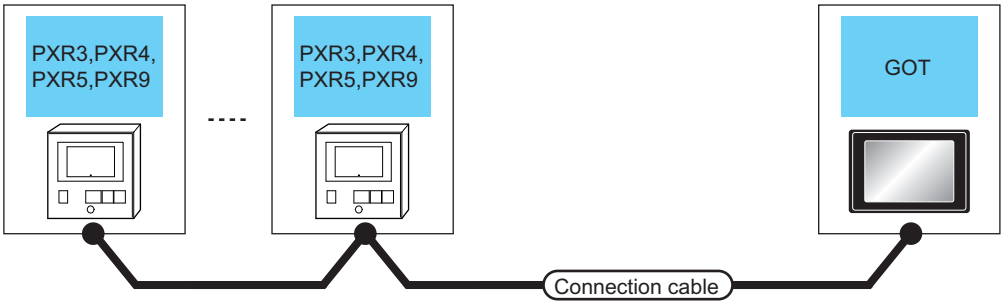
■ When connecting via the RS-232 communication




| Temperature controller | Connection cable 1) | | Interface converter | | Connection cable 2) | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|---|
| Model name | Cable model Connection diagram number | Max. distance | Model name | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| PXR3<br>PXR4<br>PXR5<br>PXR9 | User preparing RS-485 connection diagram 1) | 500m | RC-77*1 | RS-232 | User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | | | | | | GT15-RS2-9P | GT27 GT25 | |
| | User preparing RS-485 connection diagram 2) | 500m | SI-30A*2 | RS-232 | User preparing RS-232 connection diagram 2) | 15m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | | | GT15-RS2-9P | GT27 GT25 | |
| | User preparing RS-485 connection diagram 3) | 500m | KS-485*3 | RS-232 | User preparing RS-232 connection diagram 2) | 15m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by SYSMEXRA CO., LTD. For details of the product, contact SYSMEXRA CO., LTD.
*2 Product manufactured by LINEEYE CO., LTD. For details of the product, contact LINEEYE CO., LTD.
*3 Product manufactured by System Sacom corp. For details of the product, contact System Sacom corp.

■ When connecting via RS-485 communication



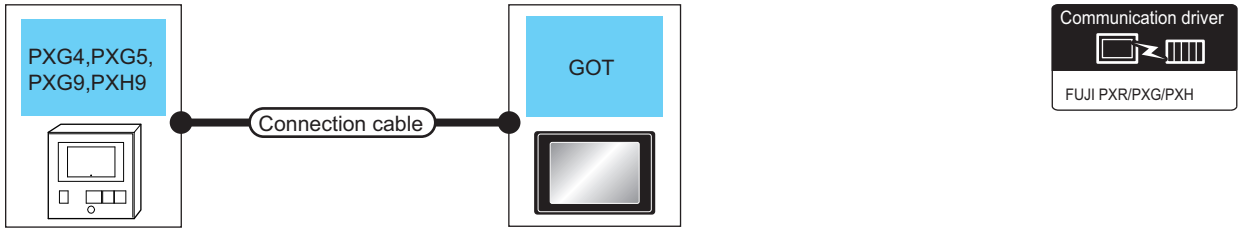

| Temperature controller | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Model name | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| PXR3<br>PXR4<br>PXR5<br>PXR9 | RS-485 | User preparing RS-485 connection diagram 4) | 500m*1 | FA-LTBGT2R4CBL05(0.5m)*2<br>FA-LTBGT2R4CBL10(1m)*2<br>FA-LTBGT2R4CBL20(2m)*2 | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | User preparing RS-485 connection diagram 5) | 500m | GT15-RS4-TE | GT27 GT25 | |
| | | User preparing RS-485 connection diagram 7) | 500m | - (Built into GOT) | GT27 GT25 GT23 | |

*1 Including the cable length of the option devices.

*2 Product manufactured by MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED. For details of the product, contact MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.

## 5.2.2 Connecting to PXG4, PXG5, PXG9 or PXH9

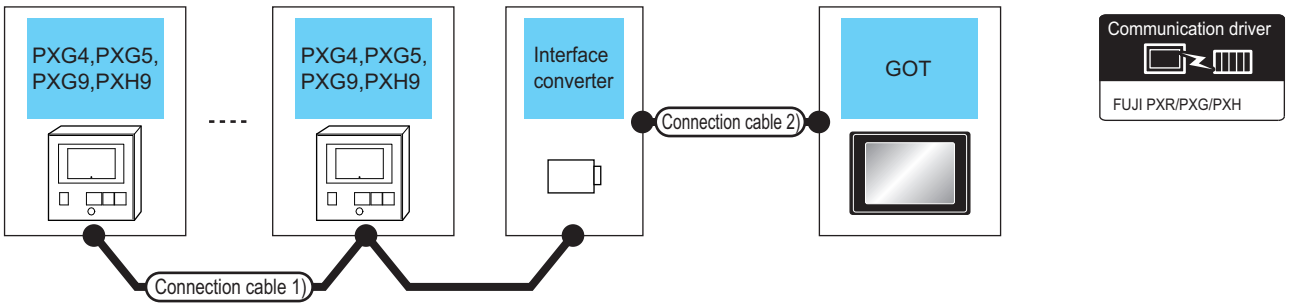
■ When connecting to one temperature controller




| Temperature controller | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Model name | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| PXG4<br>PXG5<br>PXG9<br>PXH9 | RS-232 | ZZPPXH1*TK4H4563*1 | 3m | - (Built into GOT) | GT27 GT25 GT23 | 1 temperature controller for 1 GOT |
| | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by FUJI CO., LTD. For details of the product, contact FUJI CO., LTD.

■ When connecting to multiple temperature controllers (RS-232 communication)

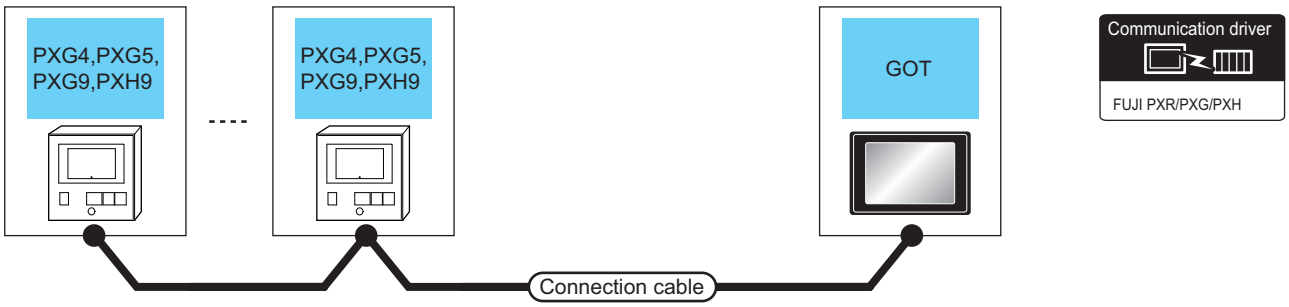



| Temperature controller | Connection cable 1) | | Interface converter | | Connection cable 2) | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|---|
| Model name | Cable model Connection diagram number | Max. distance | Model name | Model name | Cable model Connection diagram number | Max. distance | Option device | Model | |
| PXG4<br>PXG5<br>PXG9<br>PXH9 | User preparing RS-485 connection diagram 1) | 500m | RC-77*1 | RS-232 | User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | | | | | | GT15-RS2-9P | GT27 GT25 | |
| | User preparing RS-485 connection diagram 6) | 500m | K3SC-10*2 | RS-232 | User preparing RS-232 connection diagram 3) | 15m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by SYSMEXRA CO., LTD. For details of the product, contact SYSMEXRA CO., LTD.

*2 Product manufactured by OMRON Corporation. For details of the product, contact OMRON Corporation.

■ When connecting to multiple temperature controllers (RS-485 communication)




| Temperature controller | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Model name | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| PXG4<br>PXG5<br>PXG9<br>PXH9 | RS-485 | User preparing RS-485 connection diagram 4) | 500m*1 | FA-LTBGT2R4CBL05(0.5m)*2<br>FA-LTBGT2R4CBL10(1m)*2<br>FA-LTBGT2R4CBL20(2m)*2 | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | User preparing RS-485 connection diagram 5) | 500m | GT15-RS4-TE | GT27 GT25 | |
| | | User preparing RS-485 connection diagram 7) | 500m | - (Built into GOT) | GT27 GT25 GT23 | |

*1 Including the cable length of the option devices.

*2 Product manufactured by MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED. For details of the product, contact MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.

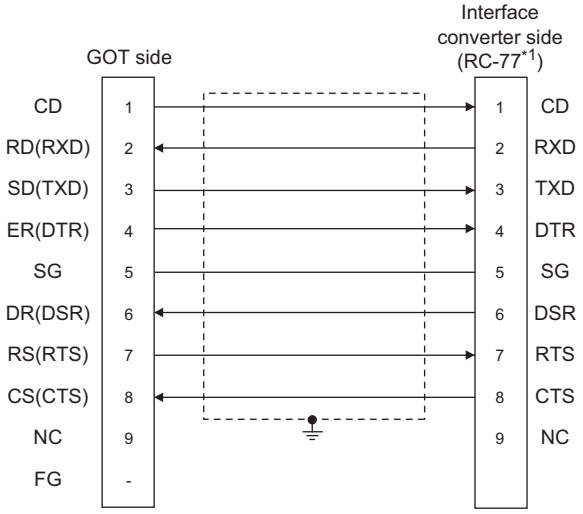
# 5.3 Connection Diagram

The following diagram shows the connection between the GOT and the temperature controller.

## 5.3.1 RS-232 cable

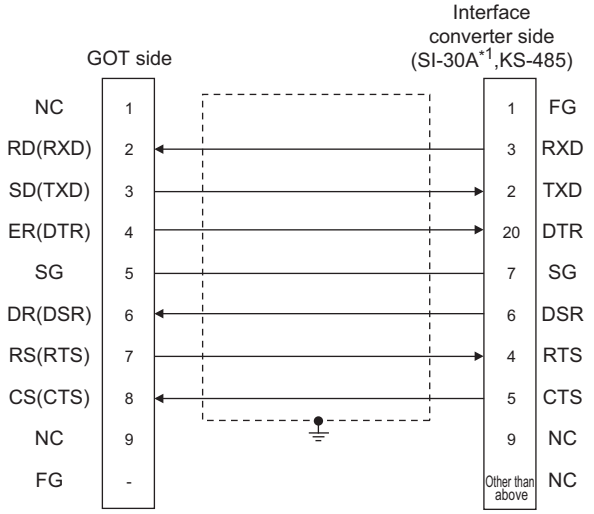
### ■ Connection diagram

(1) RS-232 connection diagram 1)


GOT side
Interface converter side (RC-77*1)
CD 1 — 1 CD
RD(RXD) 2 — 2 RXD
SD(TXD) 3 — 3 TXD
ER(DTR) 4 — 4 DTR
SG 5 — 5 SG
DR(DSR) 6 — 6 DSR
RS(RTS) 7 — 7 RTS
CS(CTS) 8 — 8 CTS
NC 9 — 9 NC
FG -

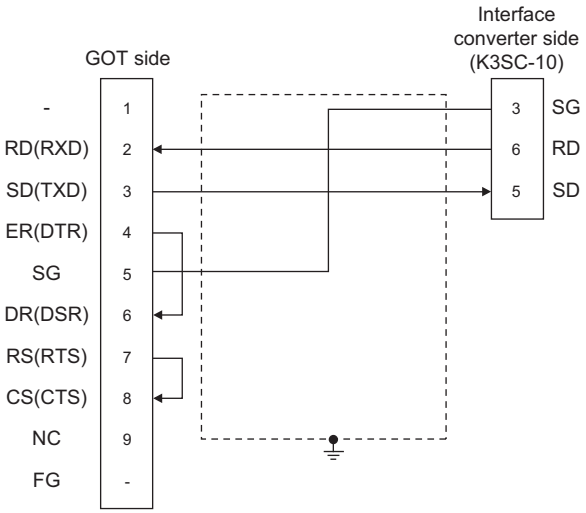
*1 Use the interface converter in the DCE mode.

(2) RS-232 connection diagram 2)


GOT side
Interface converter side (SI-30A*1,KS-485)
NC 1 — 1 FG
RD(RXD) 2 — 3 RXD
SD(TXD) 3 — 2 TXD
ER(DTR) 4 — 20 DTR
SG 5 — 7 SG
DR(DSR) 6 — 6 DSR
RS(RTS) 7 — 4 RTS
CS(CTS) 8 — 5 CTS
NC 9 — 9 NC
FG - — Other than above NC

*1 Use the interface converter in the DCE mode.

(3) RS-232 connection diagram 3)




### ■ Precautions when preparing a cable

(4) Cable length
The length of the RS-232 cable must be 15m or less.

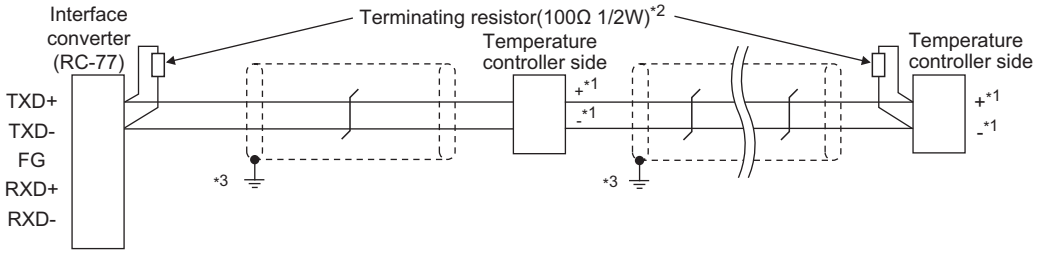
(5) GOT side connector
For the GOT side connector, refer to the following.
1.4.1 GOT connector specifications

(6) FUJI temperature controller side connector
Use the connector compatible with the FUJI temperature controller side.
For details, refer to the user's manual of the FUJI temperature controller.

## 5.3.2 RS-485 cable

### ■ Connection diagram

(1) RS-485 connection diagram 1)



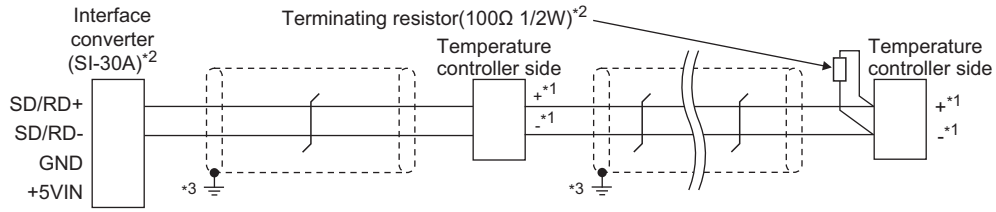

*1 Pin No. of temperature controller differs depending on the model. Refer to the following table.

| Signal name | Model of temperature controller | | | | | |
|---|---|---|---|---|---|---|
| | PXR3 | PXR4 | PXR5/9 | PXG4 | PXG5/9 | PXH9 |
| | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. |
| + | 15 | 7 | 1 | 7 | 1 | 14 |
| - | 14 | 8 | 2 | 8 | 2 | 16 |

*2 Terminating resistor should be provided for a temperature controller which will be a terminal.
Terminating resistor should be provided outside for a interface converter which will be a terminal, with the terminating switch turned OFF.

*3 Connect FG grounding to the appropriate part of a cable shield line.

(2) RS-485 connection diagram 2)



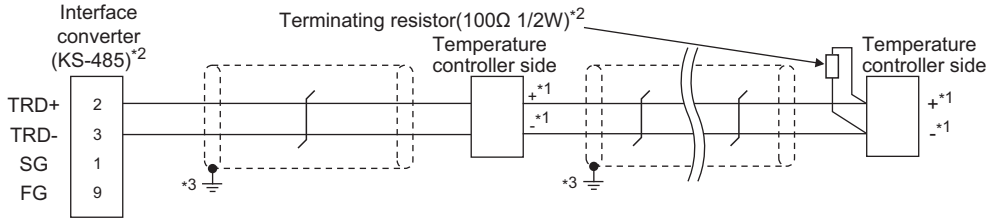

*1 Pin No. of temperature controller differs depending on the model. Refer to the following table.

| Signal name | Model of temperature controller | | | | | |
|---|---|---|---|---|---|---|
| | PXR3 | PXR4 | PXR5/9 | PXG4 | PXG5/9 | PXH9 |
| | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. |
| + | 15 | 7 | 1 | 7 | 1 | 14 |
| - | 14 | 8 | 2 | 8 | 2 | 16 |

*2 Terminating resistor should be provided for a temperature controller which will be a terminal.
Turn ON the terminating switch of an interface converter which will be a terminal.

*3 Connect FG grounding to the appropriate part of a cable shield line.

(3) RS-485 connection diagram 3)



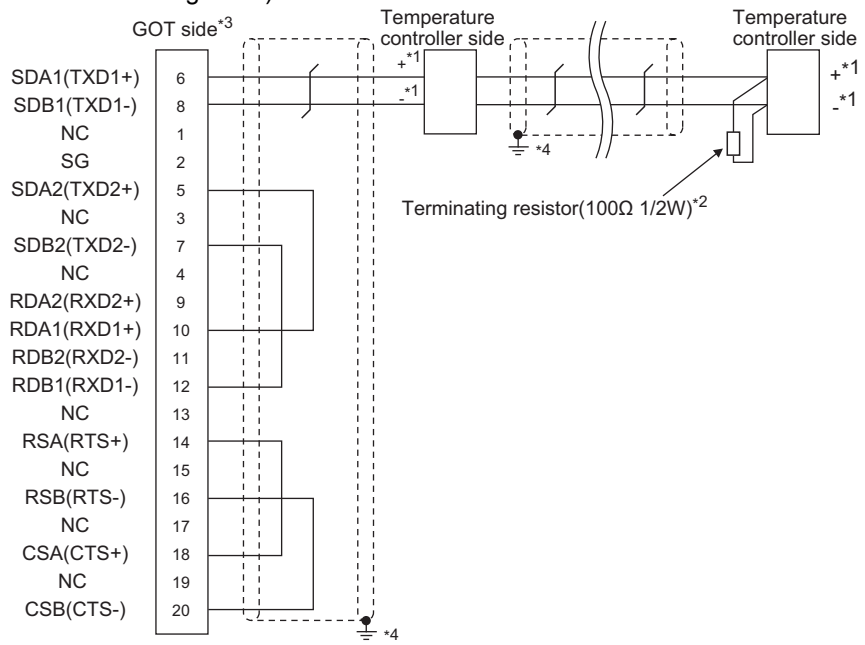

*1 Pin No. of temperature controller differs depending on the model. Refer to the following table.

| Signal name | Model of temperature controller | | | | | |
|---|---|---|---|---|---|---|
| | PXR3 | PXR4 | PXR5/9 | PXG4 | PXG5/9 | PXH9 |
| | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. |
| + | 15 | 7 | 1 | 7 | 1 | 14 |
| - | 14 | 8 | 2 | 8 | 2 | 16 |

*2 Terminating resistor should be provided for a temperature controller which will be a terminal.
Turn ON the terminating switch of an interface converter which will be a terminal.

*3 Connect FG grounding to the appropriate part of a cable shield line.

(4) RS-485 connection diagram 4)




*1 Pin No. of temperature controller differs depending on the model. Refer to the following table.

| Signal name | Model of temperature controller | | | | | |
|---|---|---|---|---|---|---|
| | PXR3 | PXR4 | PXR5/9 | PXG4 | PXG5/9 | PXH9 |
| | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. |
| + | 15 | 7 | 1 | 7 | 1 | 14 |
| - | 14 | 8 | 2 | 8 | 2 | 16 |

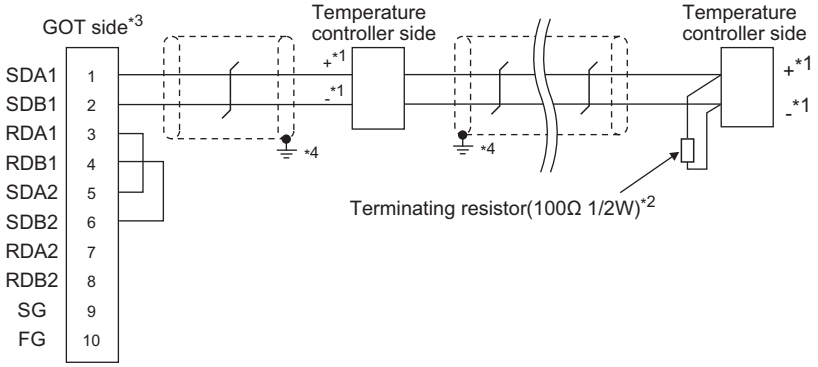
*2 Terminating resistor should be provided for a temperature controller which will be a terminal.

*3 Set the terminating resistor of GOT side which will be a terminal.

■ Connecting terminating resistors

*4 Connect FG grounding to the appropriate part of a cable shield line.

(5) RS-485 connection diagram 5)




*1 Pin No. of temperature controller differs depending on the model. Refer to the following table.

| Signal name | Model of temperature controller | | | | | |
|---|---|---|---|---|---|---|
| | PXR3 | PXR4 | PXR5/9 | PXG4 | PXG5/9 | PXH9 |
| | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. |
| + | 15 | 7 | 1 | 7 | 1 | 14 |
| - | 14 | 8 | 2 | 8 | 2 | 16 |

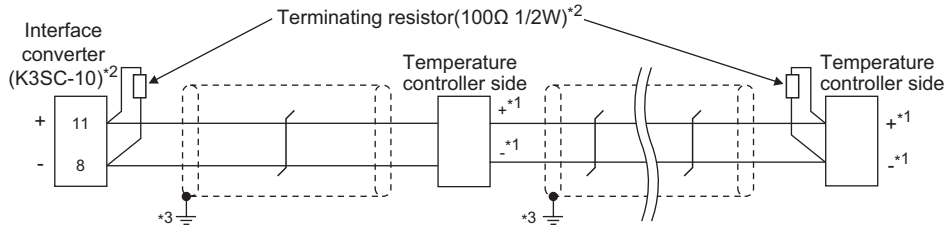
*2 Terminating resistor should be provided for a temperature controller which will be a terminal.

*3 Set the terminating resistor of GOT side which will be a terminal.

■ Connecting terminating resistors

*4 Connect FG grounding to the appropriate part of a cable shield line.

(6) RS-485 connection diagram 6)



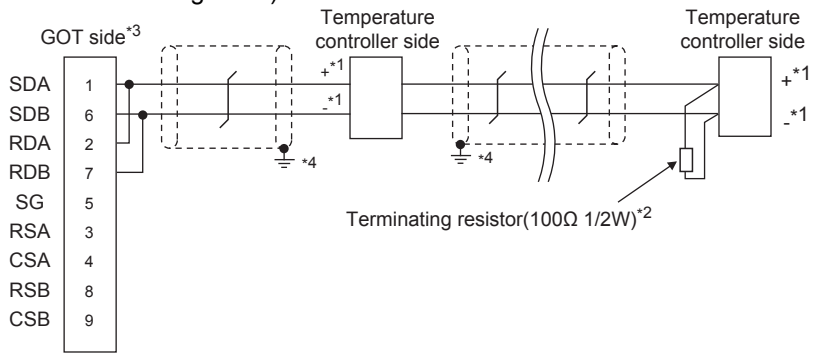

*1 Pin No. of temperature controller differs depending on the model. Refer to the following table.

| Signal name | Model of temperature controller | | | | | |
|---|---|---|---|---|---|---|
| | PXR3 | PXR4 | PXR5/9 | PXG4 | PXG5/9 | PXH9 |
| | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. |
| + | 15 | 7 | 1 | 7 | 1 | 14 |
| - | 14 | 8 | 2 | 8 | 2 | 16 |

*2 Terminating resistor should be provided for a temperature controller and an interface converter which will be terminals.

*3 Connect FG grounding to the appropriate part of a cable shield line.

(7) RS-485 connection diagram 7)




*1 Pin No. of temperature controller differs depending on the model. Refer to the following table.

| Signal name | Model of temperature controller | | | | | |
|---|---|---|---|---|---|---|
| | PXR3 | PXR4 | PXR5/9 | PXG4 | PXG5/9 | PXH9 |
| | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. |
| + | 15 | 7 | 1 | 7 | 1 | 14 |
| - | 14 | 8 | 2 | 8 | 2 | 16 |

*2 Terminating resistor should be provided for a temperature controller which will be a terminal.

*3 Set the terminating resistor of GOT side which will be a terminal.

■ Connecting terminating resistors

*4 Connect FG grounding to the appropriate part of a cable shield line.

## ■ Precautions when preparing a cable

(1) Cable length
The length of the RS-485 cable must be 500m or less.

(2) GOT side connector
For the GOT side connector, refer to the following.

1.4.1 GOT connector specifications

(3) FUJI temperature controller side connector
Use the connector compatible with the FUJI temperature controller side.
For details, refer to the user's manual of the FUJI temperature controller.

## ■ Connecting terminating resistors

(1) GOT side
Set the terminating resistor setting switch of the GOT main unit to "100 OHM".
For the procedure to set the terminating resistor, refer to the following.

1.4.3 Terminating resistors of GOT

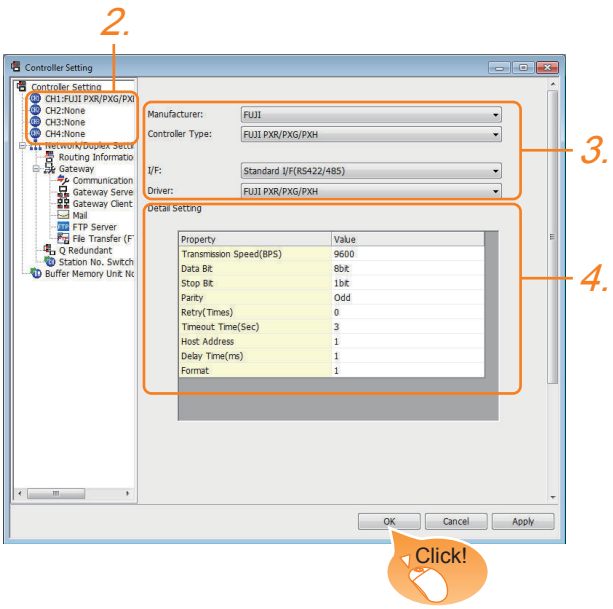
(2) FUJI temperature controller side
When connecting a FUJI temperature controller to the GOT, a terminating resistor must be connected.

5.5 Temperature Controller Side Setting

# 5.4 GOT Side Settings

## 5.4.1 Setting communication interface (Communication settings)

Set the channel of the connected equipment.




1. Select [Common] → [Controller Setting] from the menu.
2. The Controller Setting window is displayed. Select the channel to be used from the list menu.
3. Set the following items.
   - Manufacturer: FUJI
   - Controller Type: FUJI PXR/PXG/PXH
   - I/F: Interface to be used
   - Driver: FUJI PXR/PXG/PXH
4. The detailed setting is displayed after Manufacturer, Controller Type, I/F, and Driver are set.
   Make the settings according to the usage environment.
   ☞ 5.4.2 Communication detail settings

Click the [OK] button when settings are completed.

**POINT**

The settings of connecting equipment can be confirmed in [I/F Communication Setting].
For details, refer to the following.
☞ 1.1.2 I/F communication setting

## 5.4.2 Communication detail settings

Make the settings according to the usage environment.

| Property | Value |
|---|---|
| Transmission Speed(BPS) | 9600 |
| Data Bit | 8 bit |
| Stop Bit | 1 bit |
| Parity | Odd |
| Retry(Times) | 0 |
| Timeout Time(Sec) | 3 |
| Host Address | 1 |
| Delay Time(ms) | 1 |
| Format | 1 |

| Item | Description | Range |
|---|---|---|
| Transmission Speed | Set this item when change the transmission speed used for communication with the connected equipment.<br>(Default: 9600bps) | 9600bps,<br>19200bps,<br>38400bps,<br>57600bps,<br>115200bps |
| Data Bit | Set this item when change the data length used for communication with the connected equipment.<br>(Default: 8bits) | 7bits/8bits |
| Stop Bit | Specify the stop bit length for communications.<br>(Default: 1bit) | 1bit/2bits |
| Parity | Specify whether or not to perform a parity check, and how it is performed during communication.<br>(Default: Odd) | None<br>Even<br>Odd |
| Retry | Set the number of retries to be performed when a communication error occurs.<br>(Default: 0time) | 0 to 5times |
| Timeout Time | Set the time period for a communication to time out.<br>(Default: 3sec) | 1 to 30sec |
| Host Address | Specify the host address (station No. of the GOT to which the temperature controller is connected) in the connected network.<br>(Default: 1) | 1 to 255 |
| Delay Time | Set this item to adjust the transmission timing of the communication request from the GOT.<br>(Default: 5ms) | 0 to 300ms |
| Format | Select the communication format.<br>(Default: 1)<br>Format 1:<br>Accessible to PXR/PXG/PXH<br>Format 2:<br>Accessible to PXR/PXG,<br>Not accessible to PXH | 1/2 |

**POINT**

(1) Host address
Do not specify a number between 200 and 215.

(2) Format
- When connecting to PXH, specify the format 1.
- When connecting to only PXR/PXG, specifying the format 2 is recommended.

(3) Delay Time
Set the delay time to 5ms or more.

(4) Communication interface setting by the Utility
The communication interface setting can be changed on the Utility's [Communication Settings] after writing [Communication Settings] of project data.
For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

(5) Precedence in communication settings
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

# 5.5 Temperature Controller Side Setting

**POINT**

(1) FUJI temperature controller
For details of FUJI temperature controller, refer to the following manual.

☞ User's Manual of the FUJI temperature controller

(2) Interface converter
For details on communication settings of the interface converter, refer to the following manual.

☞ User's Manual of interface converter

| Model name | | Refer to |
|---|---|---|
| Temperature controller | PXR3, PXR4, PXR5, PXR9 | 5.5.1 |
| | PXG4, PXG5, PXG9 | 5.5.2 |
| | PXH9 | 5.5.3 |
| Interface converter | RC-77 | 5.5.4 |
| | SI-30A | 5.5.5 |
| | KS-485 | 5.5.6 |
| | K3SC-10 | 5.5.7 |

## 5.5.1 Connecting to PXR3/4/5/9

### ■ Communication settings

Make the communication settings by operating the key of the temperature controller.

| Item | Set value |
|---|---|
| Transmission speed | 9600bps (fixed) |
| Data bit | 8bits (fixed) |
| Parity bit*1 | Even, Odd, None |
| Stop bit | 1bit (fixed) |
| Station No.*2 | 1 to 255 |
| Communication protocol | MODBUS |

*1 Adjust the settings with GOT settings.
*2 Avoid duplication of the station No. with any of the other units.

## 5.5.2 Connecting to PXG4, PXG5 or PXG9

### ■ Communication settings

Make the communication settings by operating the key of the temperature controller.

(1) RS-485 communication settings

| Item | Set value |
|---|---|
| Transmission speed*1 | 9600bps, 19200bps |
| Data bit | 8bits (fixed) |
| Parity bit*1 | Even, Odd, None |
| Stop bit*1 | 1bit (fixed) |
| Station No.*2 | 1 to 255 |
| Communication permissions*3 | Read only permission or read and overwrite permission |

*1 Adjust the settings with GOT settings.
*2 Avoid duplication of the station No. with any of the other units.
*3 Set as necessary.

(2) RS-232 communication settings (PC loader communication)

| Item | Set value |
|---|---|
| Transmission speed | 9600bps (fixed) |
| Data bit | 8bits (fixed) |
| Parity bit | None (fixed) |
| Stop bit | 1bit (fixed) |

## 5.5.3 Connecting to PXH9

### ■ Communication settings

Make the communication settings by operating the key of the temperature controller.

(1) RS-485 communication settings

| Item | Set value |
|---|---|
| Transmission speed*1 | 9600bps, 19200bps, 38400bps |
| Data bit | 8bits (fixed) |
| Parity bit*1 | Even, Odd, None |
| Stop bit | 1bit (fixed) |
| Station No.*2 | 1 to 255 |

*1 Adjust the settings with GOT settings.
*2 Avoid duplication of the station No. with any of the other units.

(2) RS-232 communication settings (PC loader communication)

| Item | Set value |
|---|---|
| Transmission speed*1 | 9600bps, 19200bps, 38400bps |
| Data bit | 8bits (fixed) |
| Parity bit*1 | Even, Odd, None |
| Stop bit | 1bit (fixed) |
| Station No. | 1 (fixed) |

*1 Adjust the settings with GOT settings.

## 5.5.4 Connecting to interface converter (RC-77)

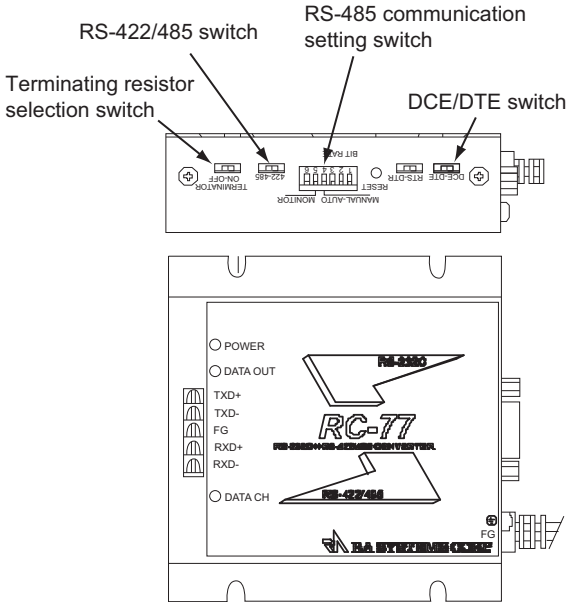
### ■ Communication settings

Make the communication settings using setting switches.

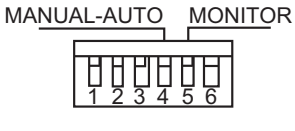
| Item | Set value |
|---|---|
| Transmission speed*1 | 9600bps, 19200bps, 38400bps |
| MANUAL-AUTO | AUTO |
| DCE/DTE switching | DCE |
| RS-422/485 switching | RS-485 |
| Terminating resistor selection | OFF |

*1 Adjust with GOT and temperature controller settings.

### ■ Settings by switch




(1) Settings of transmission speed and MANUAL-AUTO




| Setting item | Set value | Switch No. | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| Transmission speed | 9600bps | ON | ON | OFF | |
| | 19200bps | OFF | OFF | ON | |
| | 38400bps | ON | OFF | ON | |
| MANUAL-AUTO | AUTO | | | | ON |

(2) Settings of DCE/DTE, RS-422/485 and terminating resistor selection

| Setting item | Set value |
|---|---|
| DCE/DTE | DCE |
| RS-422/485 | RS-485 |
| Terminating resistor selection | OFF |

## 5.5.5 Connecting to interface converter (SI-30A)

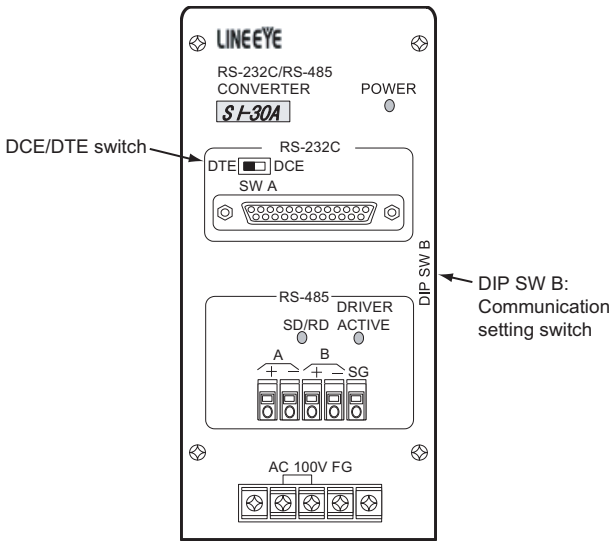
### ■ Communication settings

Make the communication settings using setting switches.

| Item | Set value |
|---|---|
| Transmission speed | 9600bps |
| MANUAL-AUTO | AUTO |
| DCE/DTE switching | DCE |
| Terminating resistor selection*1 | ON/OFF |

*1 Set as necessary.

### ■ Settings by switch



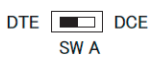

(1) Settings of transmission speed, MANUAL-AUTO and terminating resistor selection

| Setting item | Set value | Switch No. of DIP SWB | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| Transmission speed | 9600bps | ON | ON | OFF | | |
| MANUAL-AUTO | AUTO | | | | ON | |
| Terminating resistor selection*1 | Enable | | | | | ON |
| | Disable | | | | | OFF |

*1 Set as necessary.

(2) Setting of DCE/DTE switching

| Setting item | Set value |
|---|---|
| DCE/DTE | DCE |



## 5.5.6 Connecting to interface converter (KS-485)

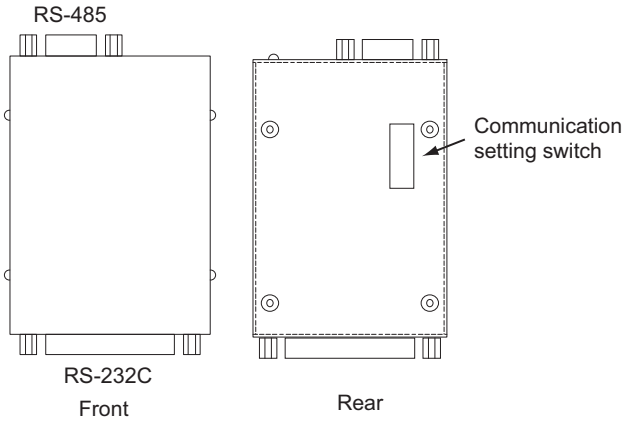
### ■ Communication settings

Make the communication settings using setting switches.

| Item | Set value |
|---|---|
| Transmission speed | 9600bps |
| Terminating resistor selection*1 | ON/OFF |

*1 Set as necessary.

### ■ Settings by switch




(1) Settings of transmission speed and terminating resistor selection

| Setting item | Set value | Switch No. | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4*2 | 5 | 6*2 | 7 | 8 |
| Transmission speed | 9600bps | ON | OFF | ON | — | ON | — | | |
| Terminating resistor selection*1 | Enable | | | | | | | ON | ON |
| | Disable | | | | | | | OFF | OFF |

*1 Set as necessary.
*2 Disabled.

## 5.5.7 Connecting to interface converter (K3SC-10)

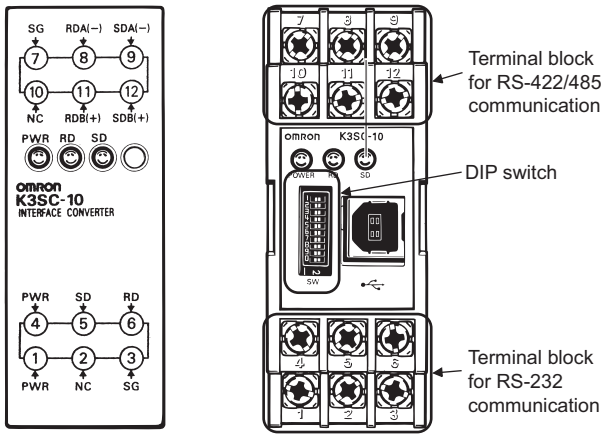
### ■ Communication settings

Make the communication settings by operating the DIP switch of the temperature controller.

| Item | Set value |
|---|---|
| Transmission speed*1 | 9600bps, 19200bps, 38400bps |
| Data bit | 8bits |
| Parity bit*1 | Odd, even, none |
| Stop bit | 1bit |
| Communication Type | RS-232C ⟷ RS-485 |
| Echo back | Without |

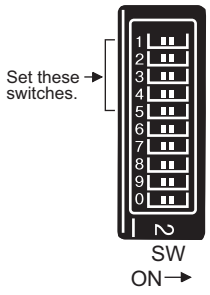
*1 Make the same setting as that of GOT side.

### ■ Settings by DIP switch

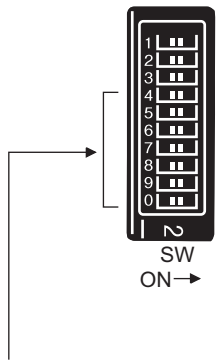



(1) Transmission speed settings

| Transmission speed (bps) | Switch No. | | |
|---|---|---|---|
| | 1 | 2 | 3 |
| 9600 | OFF | OFF | OFF |
| 19200 | ON | OFF | ON |
| 38400 | OFF | ON | ON |



(2) Settings of data length, parity bit, stop bit, master/ slave device and echoback

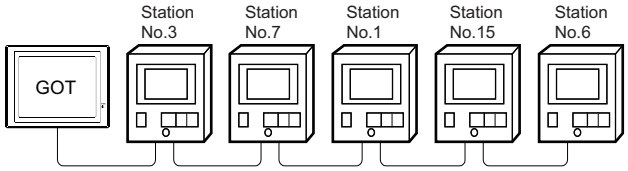



| Setting item | Set value | Switch No. | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| Stop bit | 1bit | | ON | | | | | |
| Parity bit | Even | | | OFF | OFF | | | |
| | Odd | | | ON | OFF | | | |
| | None | | | OFF | ON | | | |
| Communication Type | RS-232C ↔ RS-485 | | | | | OFF | OFF | |
| Echo back | Without | | | | | | | OFF |

## 5.5.8 Station number setting

Set each station number so that no station number overlaps.

The station number can be set without regard to the cable connection order. There is no problem even if station numbers are not consecutive.



Examples of station number setting

(1) Direct specification

When setting the device, specify the station number of the temperature controller of which data is to be changed.

| Specification range |
|---|
| 1 to 199 |
| 216 to 255 |

**POINT**

Specifying a station No. between 200 and 215 (Example of specifying the station No. 215)

1. Set the station No. to "200".
2. Input "215" to the internal device GD10.
3. The station No. 215 is specified.
   For details, refer to (2) Indirect specification shown below.

(2) Indirect specification

When setting the device, indirectly specify the station number of the inverter of which data is to be changed using the 16-bit GOT internal data register (GD10 to GD25).

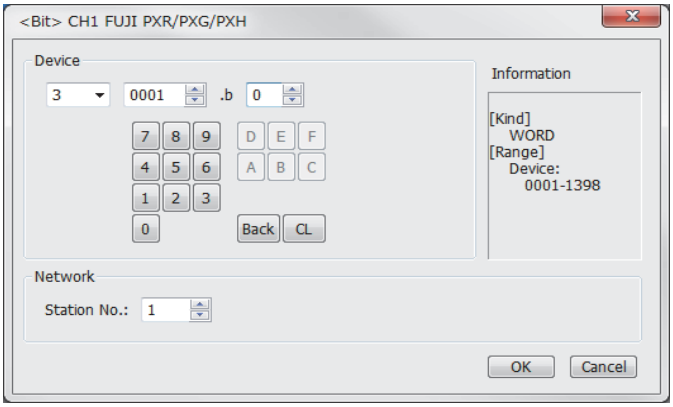
When specifying the station No. from 200 to 215 on GT Designer3, the value of GD10 to GD25 compatible to the station No. specification will be the station No. of the temperature controller.

| Specification station NO. | Compatible device | Setting range |
|---|---|---|
| 200 | GD10 | 1 to 255<br>For the setting other than the above, error (dedicated device is out of range) will occur. |
| 201 | GD11 | |
| 202 | GD12 | |
| 203 | GD13 | |
| 204 | GD14 | |
| 205 | GD15 | |
| 206 | GD16 | |
| 207 | GD17 | |
| 208 | GD18 | |
| 209 | GD19 | |
| 210 | GD20 | |
| 211 | GD21 | |
| 212 | GD22 | |
| 213 | GD23 | |
| 214 | GD24 | |
| 215 | GD25 | |

# 5.6 Device Range that Can Be Set

The device ranges of controller that can be used for GOT are as follows.
Note that the device ranges in the following tables are the maximum values that can be set in GT Designer3.
The device specifications of controllers may differ depending on the models, even though belonging to the same series.
Please make the setting according to the specifications of the controller actually used.
When a non-existent device or a device number outside the range is set, other objects with correct device settings may not be monitored.

## ■ Setting item




| Item | | Description |
|---|---|---|
| Device*1 | | Set the device name, device number, and bit number.<br>The bit number can be set only when specifying the bit of word device. |
| Information | | Displays the device type which is selected in [Device].(Bit/Word) |
| Network | | Set the monitor target of the set device. |
| | Station No. | To monitor the temperature controller of the specified station No.<br>1 to 119, 216 to 255 : To monitor the temperature controller of the specified station No.<br>200 to 215: To specify the station No. of the temperature controller to be monitored by the value of GOT data register (GD).*1 |

*1 The following shows the relation between station numbers of the temperature controller and the GOT data register.

| Station No. | GOT data register (GD) | Setting range |
|---|---|---|
| 200 | GD10 | 1 to 255<br>(If setting a value outside the range above, a device range error occurs.) |
| 201 | GD11 | |
| : | : | |
| 214 | GD24 | |
| 215 | GD25 | |

**POINT**

The device setting of FUJI temperature controller

Devices are set with the coil and register numbers of the temperature controller.
For parameters (such as an address map of coil/register number and a parameter) corresponding to each number, refer to the manual of the temperature controller to be used.

### 5.6.1 FUJI PXR/PXG/PXH

| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | Bit data (0) | 00001 to 00001 | Decimal |
| | Bit data (1)*1 | 10001 to 10016 | |
| | The bit specification of the word device | Setting range of each word device | — |
| Word device | Word data (3)*1 | 30001 to 31398 | Decimal |
| | Word data (4) | 40001 to 43776 | |

*1 Only reading is possible.

## 5.7 Precautions

### ■ Station number settings of temperature controller

In the system configuration, the temperature controller with the station number set with the host address must be included. For details of host address setting, refer to the following.

☞ 5.4.2 Communication detail settings

### ■ FIX processing of temperature controller

The temperature controller power must not be turned off during the FIX processing. Otherwise, data within the non-volatile memory will corrupt and the temperature controller will be unavailable.

### ■ GOT clock control

Since the temperature controller does not have a clock function, the settings of "time adjusting" or "time broad cast" by GOT clock control will be disabled.

### ■ Disconnecting some of multiple connected equipment

The GOT can disconnect some of multiple connected equipment by setting GOT internal device. For example, the faulty station where a communication timeout error occurs can be disconnected from connected equipment.
For details of GOT internal device setting, refer to the following manual.

☞ GT Designer3 (GOT2000) Help

# 6

# CONNECTION TO YASKAWA PLC


6.1 Connectable Model List . . . . . 6 - 2
6.2 Serial Connection . . . . . 6 - 3
6.3 Ethernet Connection . . . . . 6 - 20
6.4 Device Range that Can Be Set . . . . . 6 - 32

# 6. CONNECTION TO YASKAWA PLC

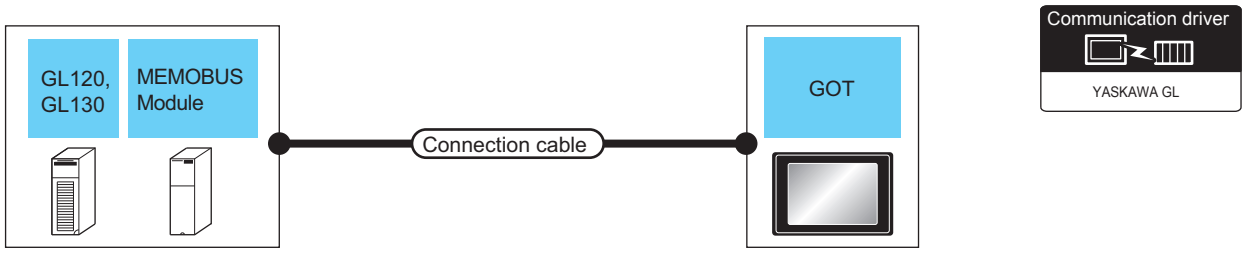
## 6.1 Connectable Model List

The following table shows the connectable models.

| Model name | Clock | Communication | Connectable model | Refer to |
|---|---|---|---|---|
| GL120 | ○ | RS-232<br>RS-422 | GT27 GT25 GT23 | 6.2.1 |
| GL130 | | | | |
| GL60S | × | RS-232<br>RS-422 | GT27 GT25 GT23 | 6.2.2 |
| GL60H | | | | |
| GL70H | | | | |
| MP920 | × | RS-232<br>RS-422 | GT27 GT25 GT23 GT21 GS | 6.2.3 |
| MP930 | | | | |
| CP-9300MS | | | | |
| CP-9200(H) | | | | |
| PROGIC-8 | | | | |
| MP940 | × | RS-232<br>RS-422 | GT27 GT25 GT23 GT21 GS | 6.2.4 |
| CP-9200SH | × | RS-232 | GT27 GT25 GT23 GT21 GS | 6.2.5 |
| CP-317 | | | | |
| MP2200 | × | RS-232<br>RS-422 | GT27 GT25 GT23 GT21 GS | 6.2.6 |
| MP2300 | | | | |
| MP2300S | | | | |
| MP920 | × | Ethernet | GT27 GT25 GT23 | 6.3.1 |
| MP2200 | | | | |
| MP2300 | | | | |
| MP2300S | | | | |
| CP-9200SH | | | | |
| CP-312 | | | | |
| CP-317 | | | | |

# 6.2 Serial Connection

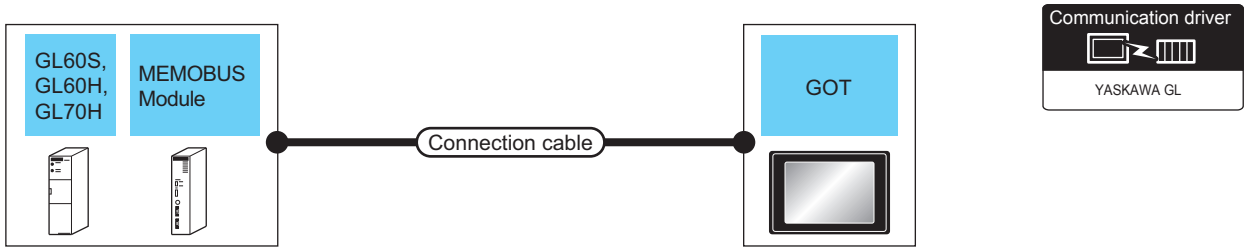
## 6.2.1 System configuration for connecting to GL120 or GL130




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | MEMOBUS module*1 | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| GL120<br>GL130 | - | RS-232 | GT09-C30R20201-9P (3m)<br>or<br>User preparing RS-232 connection diagram 1) | Differs according to PLC side specifications. | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 PLC |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | JAMSC-120NOM27100 | RS-422 | GT09-C30R40201-9P (3m)<br>GT09-C100R40201-9P (10m)<br>GT09-C200R40201-9P (20m)<br>GT09-C300R40201-9P (30m)<br>or<br>User preparing RS-422 connection diagram 1) | same as above | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 MEMOBUS module |
| | | | | | GT15-RS4-9S | GT27 GT25 | |

*1 Product manufactured by YASKAWA Electric Corporation. For details of the product, contact YASKAWA Electric Corporation.

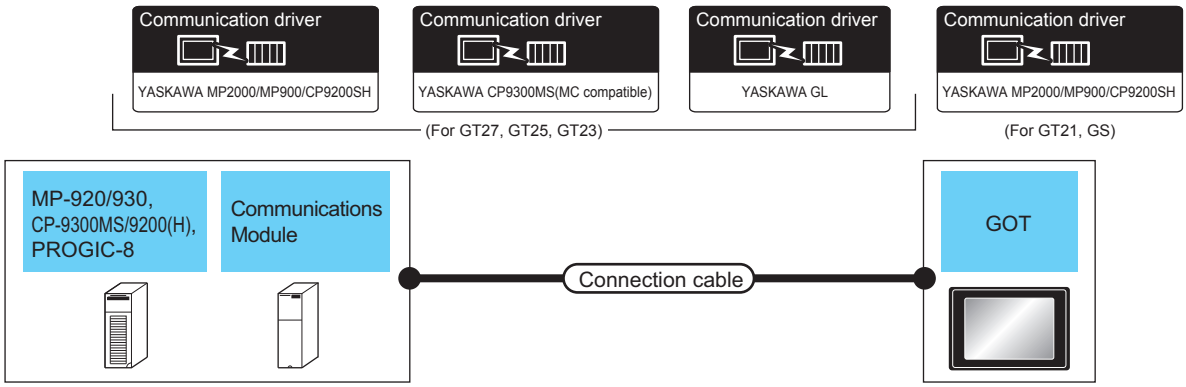
## 6.2.2 System configuration for connecting to GL60S, GL60H or GL70H




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | MEMOBUS module*1 | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| GL60S<br>GL60H<br>GL70H | JAMSC-IF60<br>JAMSC-IF61 | RS-232 | GT09-C30R20201-9P (3m)<br>or<br>User preparing RS-232 connection diagram 1) | Differs according to PLC side specifications. | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 MEMOBUS module |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | JAMSC-IF612 | RS-422 | GT09-C30R40201-9P (3m)<br>GT09-C100R40201-9P (10m)<br>GT09-C200R40201-9P (20m)<br>GT09-C300R40201-9P (30m)<br>or<br>User preparing RS-422 connection diagram 1) | same as above | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | GT15-RS4-9S | GT27 GT25 | |

*1 Product manufactured by YASKAWA Electric Corporation. For details of the product, contact YASKAWA Electric Corporation.

## 6.2.3 System configuration for connecting to MP-920/930, CP-9300MS/9200(H) or PROGIC-8

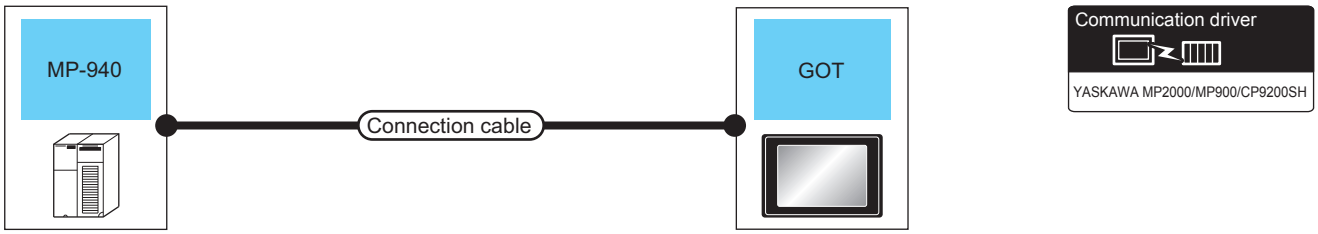



| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | Communication module | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| MP-920<br>MP-930 | - | RS-232 | GT09-C30R20201-9P (3m)<br>or<br>User preparing RS-232 connection diagram 1) | Differs according to PLC side specifications. | - (Built into GOT) | GT27 GT25 GT23 GS | 1 GOT for 1 PLC |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | | | | | GT10-C02H-6PT9P*1 | GT21 R4 03P GT21 R2 03P | |
| | | | User preparing RS-232 connection diagram 7) | same as above | - (Built into GOT) | GT21 04R GT21 R2 03P | |
| CP-9200(H)<br>PROGIC-8<br>(connecting to port1) | - | RS-232 | GT09-C30R20201-9P (3m)<br>or<br>User preparing RS-232 connection diagram 1) | same as above | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | GT15-RS2-9P | GT27 GT25 | |

| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | Communication module | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| PROGIC-8<br>(connecting to port2) | - | RS-232 | GT09-C30R20202-15P (3m)<br>or<br>User preparing RS-232 connection diagram 2) | Differs according to PLC side specifications. | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 PLC |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| CP-9300MS<br>(CP-9300MC compatible/non-compatible) | - | RS-232 | GT09-C30R20203-9P (3m)<br>or<br>User preparing RS-232 connection diagram 3) | same as above | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| MP-920<br>(connecting to 217IF) | 217IF | RS-232 | GT09-C30R20201-9P (3m)<br>or<br>User preparing RS-232 connection diagram 1) | same as above | - (Built into GOT) | GT27 GT25 GT23 GS | 1 GOT for 1 communication module |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | | | | | GT10-C02H-6PT9P*1 | GT21 03P R4 GT21 03P R2 | |
| | | | User preparing RS-232 connection diagram 7) | same as above | - (Built into GOT) | GT21 04R GT21 03P R2 | |
| | | RS-422 | User preparing RS-422 connection diagram 2) | same as above | - (Built into GOT) | GT27 GT25 GT23 GS | |
| | | | | | GT15-RS4-9S | GT27 GT25 | |
| | | | | | GT10-C02H-9SC | GT21 04R GT21 03P R4 | |
| | | | User preparing RS-422 connection diagram 5) | same as above | - (Built into GOT) | GT21 04R GT21 03P ET/R4 GT21 03P R4 | |

*1 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.

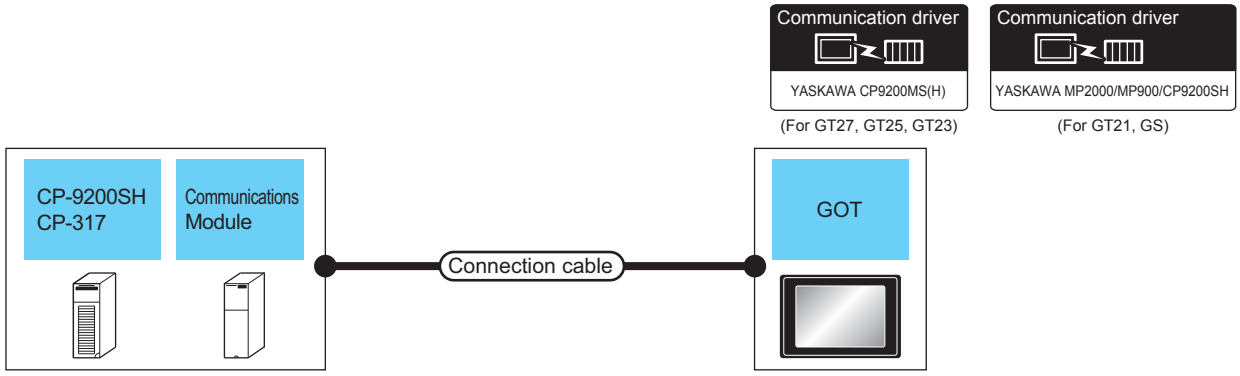
## 6.2.4 System configuration for connecting to MP-940




| PLC | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Model name | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| MP-940 | RS-232 | GT09-C30R20204-14P (3m)<br>or<br>User preparing RS-232 connection diagram 4) | Differs according to PLC side specifications. | - (Built into GOT) | GT27 GT25 GT23 GS | 1 GOT for 1 PLC |
| | | | | GT15-RS2-9P | GT27 GT25 | |
| | | | | GT10-C02H-6PT9P*1 | GT21 R4 GT21 R2 | |
| | | User preparing RS-232 connection diagram 8) | same as above | - (Built into GOT) | GT21 R2 | |
| | RS-422 | GT09-C30R40202-14P (3m)<br>GT09-C100R40202-14P (10m)<br>GT09-C200R40202-14P (20m)<br>GT09-C300R40202-14P (30m)<br>or<br>User preparing RS-422 connection diagram 3) | 300m | - (Built into GOT) | GT27 GT25 GT23 GS | |
| | | | | GT15-RS4-9S | GT27 GT25 | |
| | | | | GT10-C02H-9SC | GT21 R4 GT21 R2 | |
| | | User preparing RS-422 connection diagram 6) | Differs according to PLC side specifications. | - (Built into GOT) | GT21 ET/R4 GT21 R4 | |

*1 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.

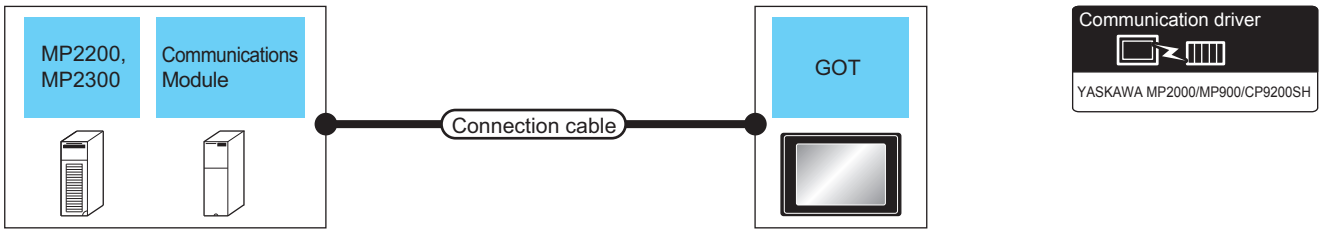
## 6.2.5 System configuration for connecting to CP-9200SH, CP-317




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | Communication module*1 | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| CP-9200SH<br>CP-317 | CP-217IF<br>(CN1 connection) | RS-232 | GT09-C30R20203-9P(3m)<br>or<br>User preparing RS-232 connection diagram 6) | Differs according to PLC side specifications. | - (Built into GOT) | GT27 GT25 GT23 GS | 1 GOT for 1 communication module |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | | | | | GT10-C02H-6PT9P*2 | GT21 GT21 | |
| | | | User preparing RS-232 connection diagram 10) | same as above | - (Built into GOT) | GT21 GT21 | |
| | CP-217IF<br>(CN2 connection) | RS-232 | GT09-C30R20205-25P (3m)<br>or<br>User preparing RS-232 connection diagram 5) | same as above | - (Built into GOT) | GT27 GT25 GT23 GS | |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | | | | | GT10-C02H-6PT9P*2 | GT21 GT21 | |
| | | | User preparing RS-232 connection diagram 9) | same as above | - (Built into GOT) | GT21 GT21 | |

*1 Product manufactured by YASKAWA Electric Corporation. For details of the product, contact YASKAWA Electric Corporation.
*2 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.

## 6.2.6 System configuration for connecting to MP2200, MP2300 or MP2300S




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | Communication module*1 | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| MP2200<br>MP2300<br>MP2300S | 217IF-01<br>218IF-01<br>218IF-02 | RS-232 | GT09-C30R20201-9P(3m)<br>or<br>User preparing RS-232 connection diagram 1) | Differs according to PLC side specifications. | - (Built into GOT) | GT27 GT25 GT23 GS | 1 GOT for 1 communication module |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | | | | | GT10-C02H-6PT9P*2 | GT21 03P R4 GT21 03P R2 | |
| | | | User preparing RS-232 connection diagram 7) | same as above | - (Built into GOT) | GT21 04R GT21 03P R2 | |
| | 217IF-01 | RS-422 | User preparing RS-422 connection diagram 4) | same as above | - (Built into GOT) | GT27 GT25 GT23 GS | |
| | | | | | GT15-RS4-9S | GT27 GT25 | |
| | | | | | GT10-C02H-9SC | GT21 04R GT21 03P R2 | |
| | | | User preparing RS-422 connection diagram 7) | same as above | - (Built into GOT) | GT21 04R GT21 03P ET/R4 GT21 03P R4 | |

*1 Product manufactured by YASKAWA Electric Corporation. For details of the product, contact YASKAWA Electric Corporation.

*2 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.

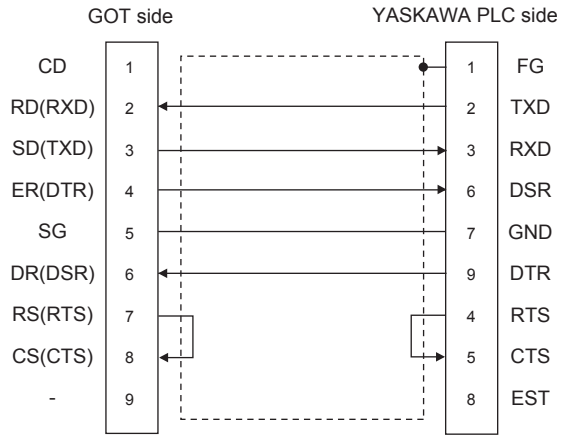
## 6.2.7 Connection Diagram

The following diagram shows the connection between the GOT and the PLC.

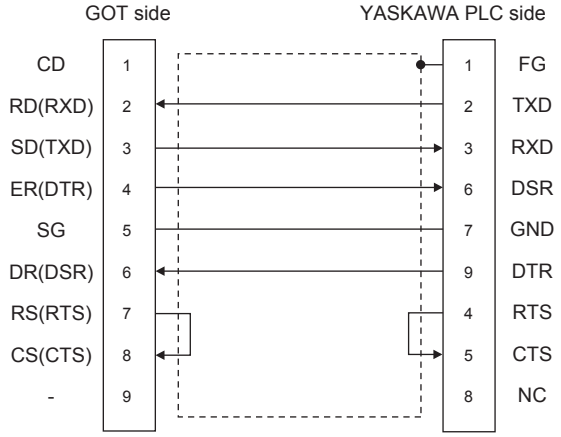
### ■ RS-232 cable

(1) Connection diagram

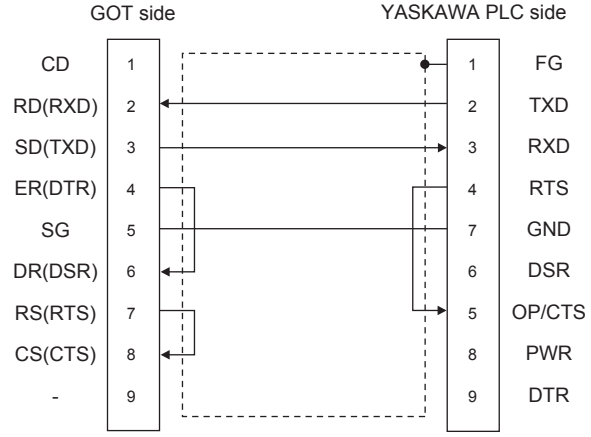
(a) RS-232 connection diagram 1)



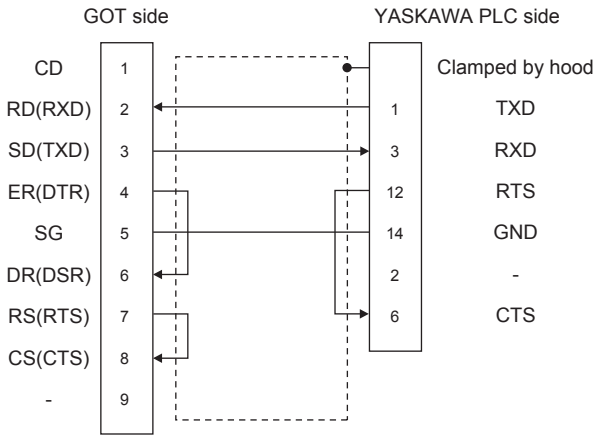

(b) RS-232 connection diagram 2)



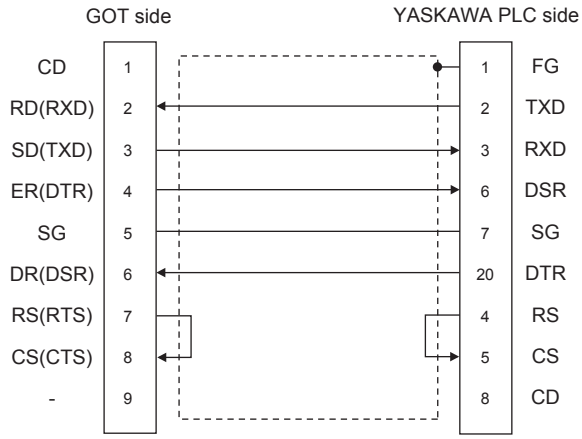

(c) RS-232 connection diagram 3)



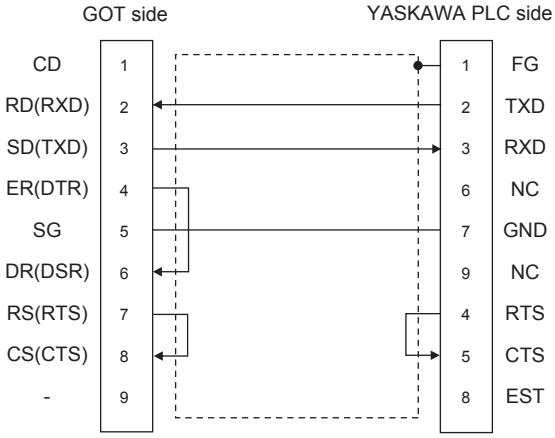

(d) RS-232 connection diagram 4)



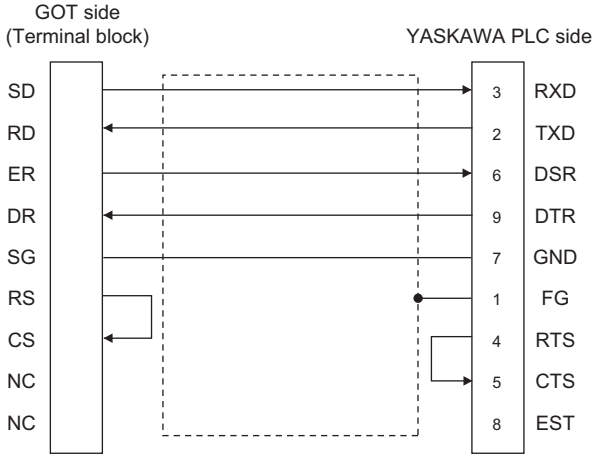

(e) RS-232 connection diagram 5)



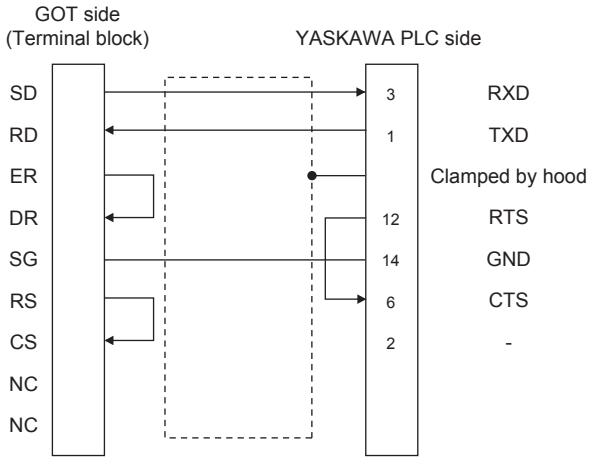

(f) RS-232 connection diagram 6)



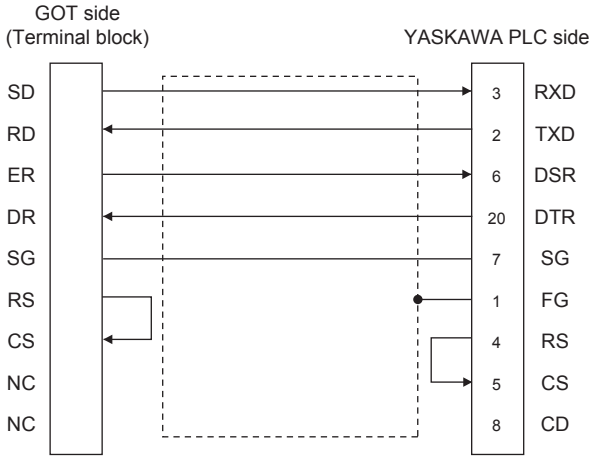
(g) RS-232 connection diagram 7)



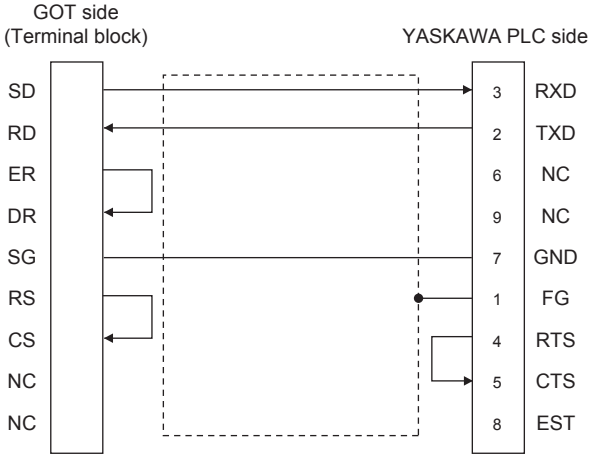

(h) RS-232 connection diagram 8)




(i) RS-232 connection diagram 9)




(j) RS-232 connection diagram 10)



(2) Precautions when preparing a cable

(a) Cable length
The maximum length of the RS-232 cable differs according to the specifications of the YASKAWA PLC side.
For details, refer to the YASKAWA PLC user's manual.

(b) GOT side connector
For the GOT side connector, refer to the following.

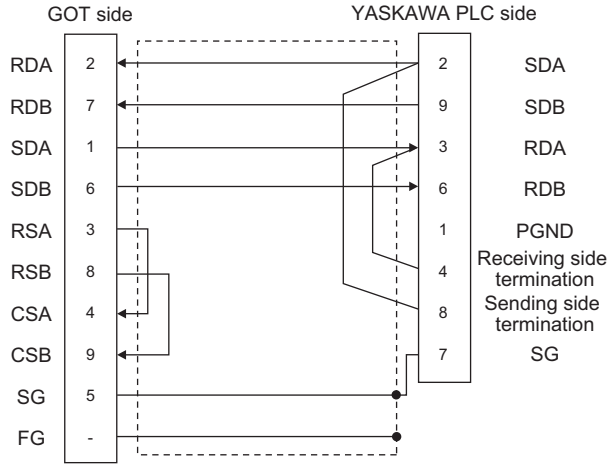
1.4.1 GOT connector specifications

(c) YASKAWA PLC side connector
Use the connector compatible with the YASKAWA PLC side module.
For details, refer to the YASKAWA PLC user's manual.

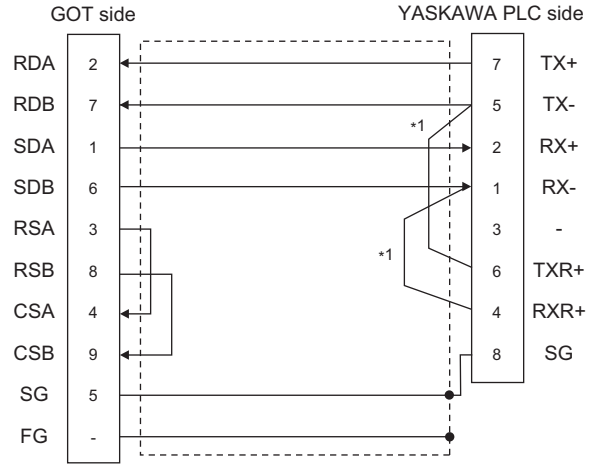
## ■ RS-422 cable

(1) Connection diagram

(a) RS-422 connection diagram 1)

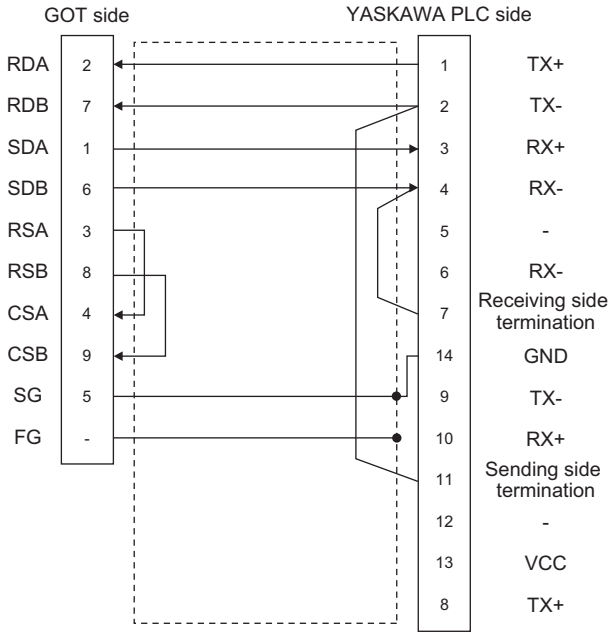



(b) RS-422 connection diagram 2)

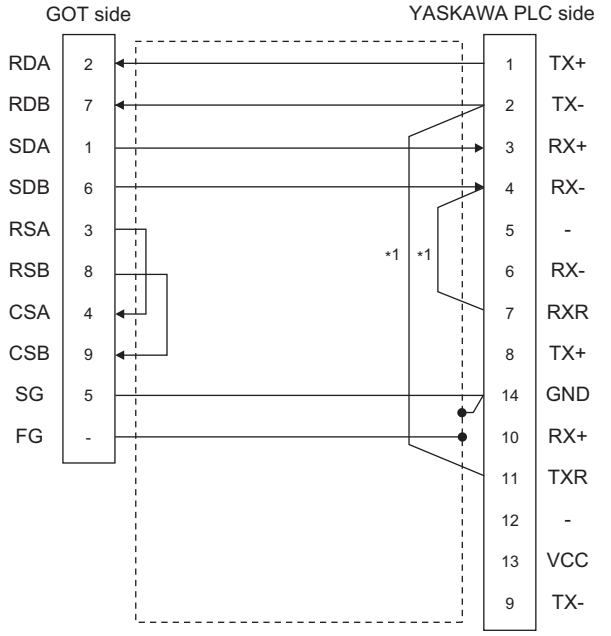



*1 The terminating resistor (120Ω) is valid by connecting pin 1 with pin 4 and pin 5 with pin 6 of the YASKAWA PLC side.

(c) RS-422 connection diagram 3)

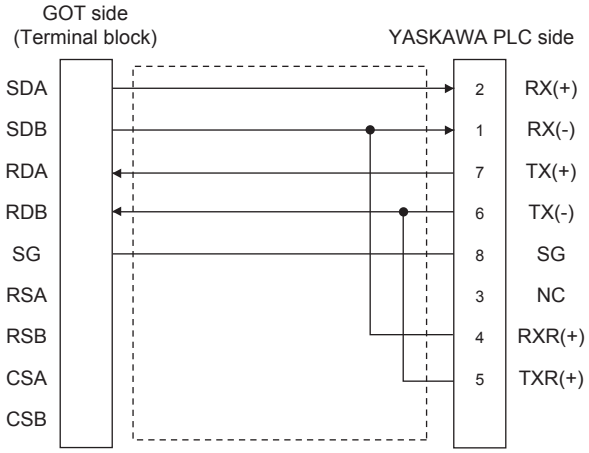



(d) RS-422 connection diagram 4)

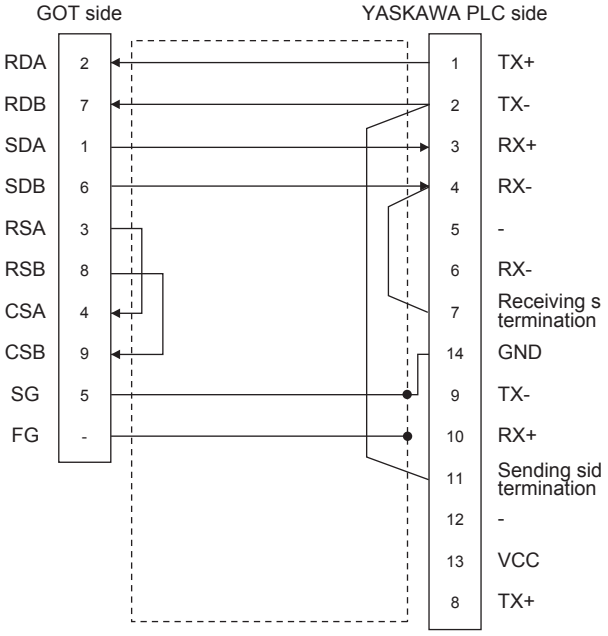



*1 Connect RXR with RX(-) and TXR with TX(-) of 217IF01, and insert the terminating resistor.

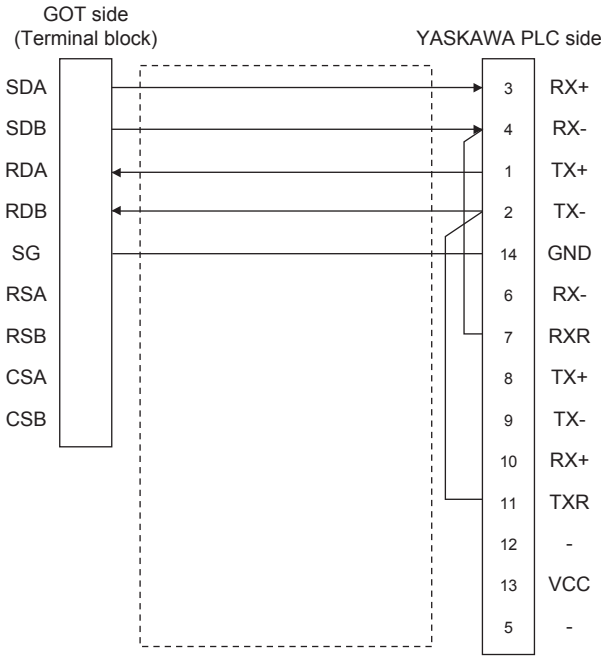
(e) RS-422 connection diagram 5)




(f) RS-422 connection diagram 6)




(g) RS-422 connection diagram 7)



(2) Precautions when preparing a cable

(a) Cable length
The length of RS-422 cable 2) must be 300m or less.
The maximum length of RS-422 cable 1) differs according to the specifications of the YASKAWA PLC side.
For details, refer to the YASKAWA PLC user's manual.

(b) GOT side connector
For the GOT side connector, refer to the following.

☞ 1.4.1 GOT connector specifications

(c) YASKAWA PLC side connector
Use the connector compatible with the YASKAWA PLC side module.
For details, refer to the YASKAWA PLC user's manual.

(3) Connecting terminating resistors

(a) GOT side
When connecting a PLC to the GOT, a terminating resistor must be connected to the GOT.
• For GT27, GT25, GT23
Set the terminating resistor setting switch of the GOT main unit to "Disable".
• For GT21
Set the terminating resistor selector to "330Ω".
For the procedure to set the terminating resistor, refer to the following.

☞ 1.4.3 Terminating resistors of GOT

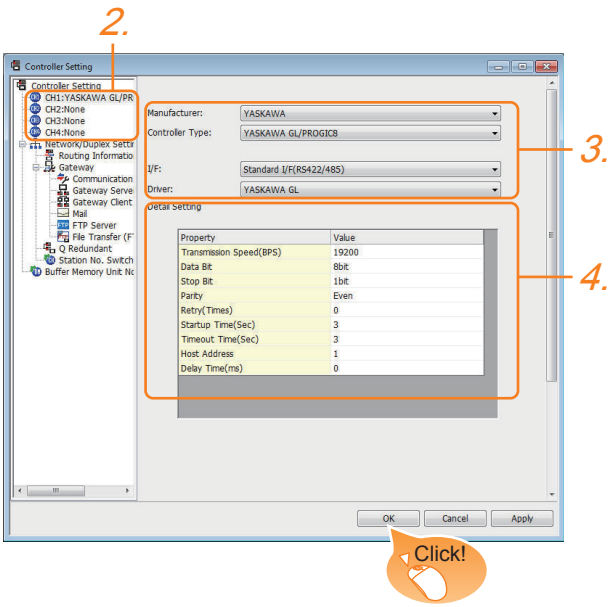
(b) YASKAWA PLC side
When connecting a YASKAWA PLC to a GOT, connect a terminating resistor to the YASKAWA PLC if required.

☞ YASKAWA PLC user's Manual

## 6.2.8 GOT Side Settings

### ■ Setting communication interface (Communication settings)

Set the channel of the connected equipment.




1. Select [Common] → [Controller Setting] from the menu.
2. The Controller Setting window is displayed. Select the channel to be used from the list menu.
3. Set the following items.
   - Manufacturer: YASKAWA
   - Controller Type: Set either of the following
     <For GT27,GT25,GT23>
     - YASKAWA GL/PROGIC8
     - YASKAWA CP9200(H)
     - YASKAWA CP9300MS (MC compatible)
     - YASKAWA MP2000/MP900/CP9200SH series

     <For GT21,GS>
     - YASKAWA MP2000/MP900/CP9200SH series
   - I/F: Interface to be used
   - Driver: Set either of the following.
     <For GT27,GT25,GT23>
     - YASKAWA GL
     - YASKAWA CP9200(H)
     - YASKAWA CP9300MS (MC compatible)
     - YASKAWA MP2000/MP900/CP9200SH

     <For GT21,GS>
     - YASKAWA MP2000/MP900/CP9200SH
4. The detailed setting is displayed after Manufacturer, Controller Type, I/F, and Driver are set.
   Make the settings according to the usage environment.
   ☞ 6.2.8 ■ Communication detail settings

Click the [OK] button when settings are completed.

**POINT**

The settings of connecting equipment can be confirmed in [I/F Communication Setting].
For details, refer to the following.
☞ 1.1.2 I/F communication setting

### ■ Communication detail settings

Make the settings according to the usage environment.
(For GT27, GT25, GT23)

| Property | Value |
|---|---|
| Transmission Speed(BPS) | 19200 |
| Data Bit | 8 bit |
| Stop Bit | 1 bit |
| Parity | Even |
| Retry(Times) | 0 |
| Startup Time(Sec) | 3 |
| Timeout Time(Sec) | 3 |
| Host Address | 1 |
| Delay Time(ms) | 0 |

| Item | Description | Range |
|---|---|---|
| Transmission Speed | Set this item when change the transmission speed used for communication with the connected equipment. (Default: 19200bps) | 4800bps, 9600bps, 19200bps, 38400bps, 57600bps |
| Data Bit | Set this item when change the data length used for communication with the connected equipment. (Default: 8bit) | 8bit (fixed) |
| Stop Bit | Specify the stop bit length for communications. (Default: 1bit) | 1bit (fixed) |
| Parity | Specify whether or not to perform a parity check, and how it is performed during communication. (Default: Even) | Even (fixed) |
| Retry | Set the number of retries to be performed when a communication error occurs. (Default: 0time) | 0 to 5times |
| Startup Time | Specify the time period from the GOT startup until GOT starts the communication with the PLC CPU. (Default: 3sec) | 3 to 30sec |
| Timeout Time | Set the time period for a communication to time out. (Default: 3sec) | 1 to 30sec |
| Host Address | Specify the host address (station No. of the PLC to which the GOT is connected) in the network of the GOT. (Default: 1) | 1 to 31 |
| Delay Time | Set this item to adjust the transmission timing of the communication request from the GOT. (Default: 0ms) | 0 to 30 (× 10ms) |

(For GT21,GS)

| Property | Value |
|---|---|
| Transmission Speed(BPS) | 19200 |
| Data Bit | 8bit |
| Stop Bit | 1bit |
| Parity | Even |
| Retry(Times) | 0 |
| Startup Time(Sec) | 3 |
| Timeout Time(Sec) | 3 |
| Host Address | 1 |
| Delay Time(ms) | 0 |
| 32bit Storage | Auto |

| Item | Description | Range |
|---|---|---|
| Transmission Speed | Set this item when change the transmission speed used for communication with the connected equipment.<br>(Default: 19200bps) | 4800bps, 9600bps, 19200bps, 38400bps, 57600bps |
| Data Bit | Set this item when change the data length used for communication with the connected equipment.<br>(Default: 8bit) | 8bit (fixed) |
| Stop Bit | Specify the stop bit length for communications.<br>(Default: 1bit) | 1bit (fixed) |
| Parity | Specify whether or not to perform a parity check, and how it is performed during communication.<br>(Default: Even) | Even (fixed) |
| Retry | Set the number of retries to be performed when a communication error occurs.<br>(Default: 0time) | 0 to 5times |
| Startup Time | Specify the time period from the GOT startup until GOT starts the communication with the PLC CPU.<br>(Default: 3sec) | 3 to 30sec |
| Timeout Time | Set the time period for a communication to time out.<br>(Default: 3sec) | 1 to 30sec |
| Host Address | Specify the host address (station No. of the PLC to which the GOT is connected) in the network of the GOT.<br>(Default: 1) | 1 to 31 |
| Delay Time | Set this item to adjust the transmission timing of the communication request from the GOT.<br>(Default: 0ms) | 0 to 30<br>(× 10ms) |
| 32 bit Storage | Select the steps to store two words (32-bit data).<br>(Default: Auto) | LH Order/ HL Order/ Auto |

**POINT**

(1) Delay Time
When connecting to PLC CP-9200(H) and CP-9300MS, set the following.

| Model name | | Delay Time |
|---|---|---|
| CP-9200(H) | | 30ms or more |
| CP-9300MS | port:0 | 10ms or more |
| | port:1 | 30ms or more |

(2) Communication interface setting by the Utility
The communication interface setting can be changed on the Utility's [Communication setting] after writing [Communication Settings] of project data.
For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

(3) Precedence in communication settings
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

## 6.2.9 PLC Side Settings

POINT

YASKAWA PLC

For details of YASKAWA PLCs, refer to the following manuals.

YASKAWA PLC user's Manual

### ■ Communication and port settings

Make the communication and port settings with a peripheral tool.

| Device name | Set value |
|---|---|
| Address*1 | 1 to 31 |
| Protocol | MEMOBUS |
| Mode | RTU |
| Transmission speed*2*3 | 4800bps, 9600bps, 19200bps, 38400bps, 57600bps |
| Data bit | 8bits |
| Stop bit | 1bit |
| Parity bit | Even |
| Error check | CRC16 |

*1 Set the address according to the Host Address setting on the GOT side.
For the Host Address setting on the GOT side, refer to the following.

6.2.8 ■ Communication detail settings

*2 Only transmission speeds available on the GOT side are shown.
Also, the setting range differs depending on the YASKAWA PLC model.

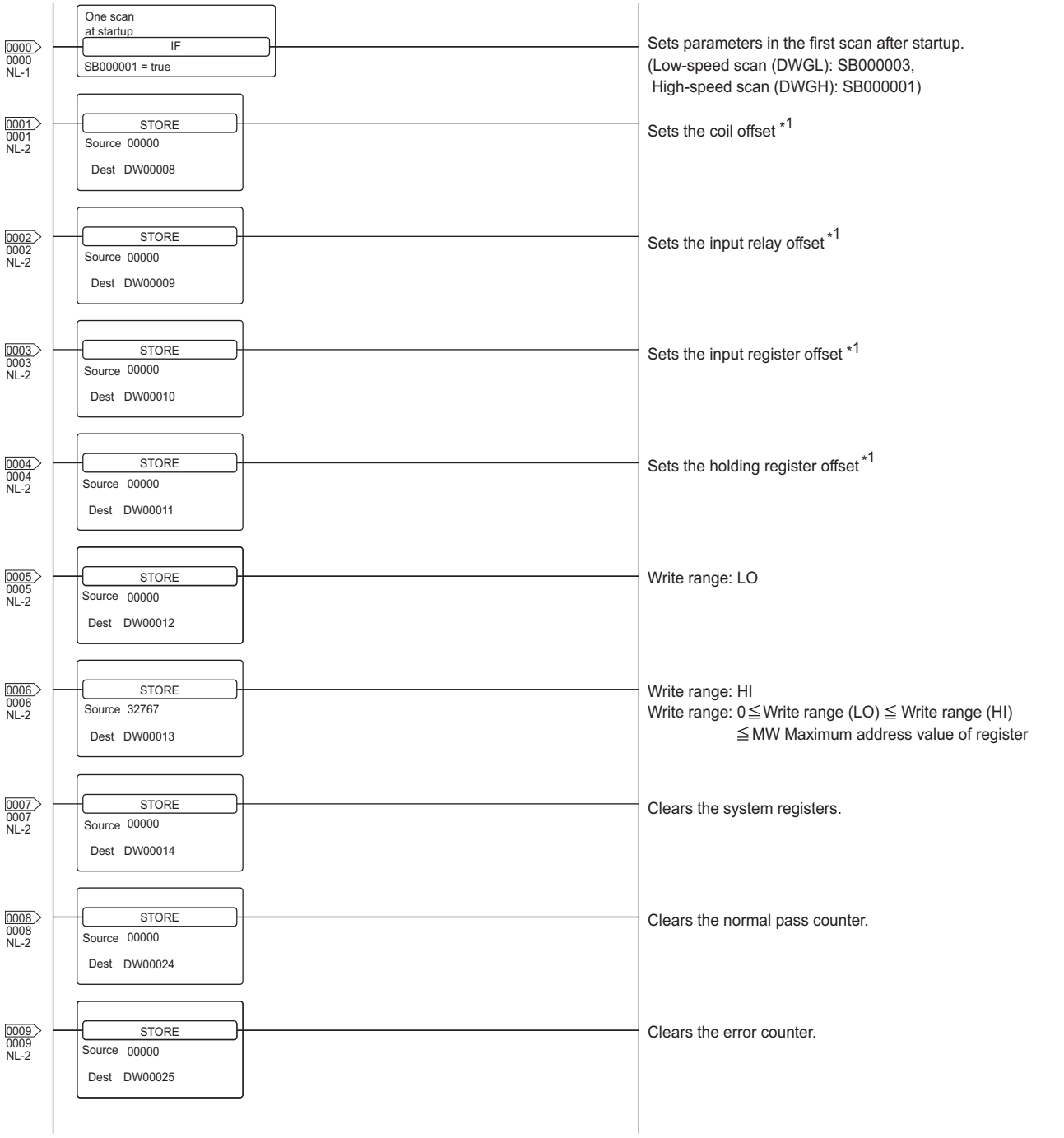
*3 The transmission speed setting must be consistent with that of the GOT side.
For the transmission speed setting on the GOT side, refer to the following.

6.2.8 ■ Communication detail settings

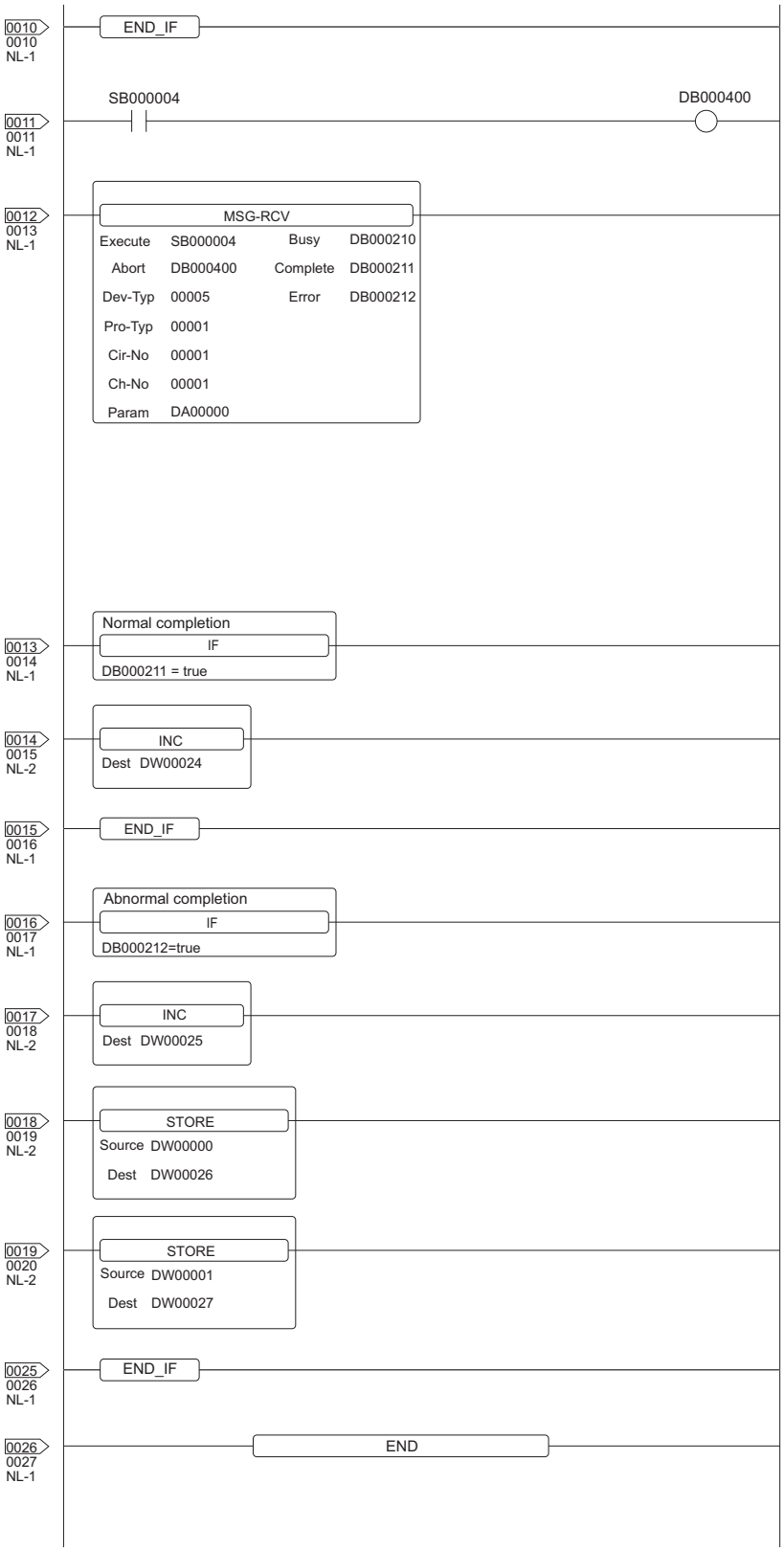
## ■ Sequence program

To communicate the YASKAWA PLCs with the GOT1000 series, the ladder program to receive messages is required. The following shows an example ladder program for MP2000 series.

ladder program to receive massages



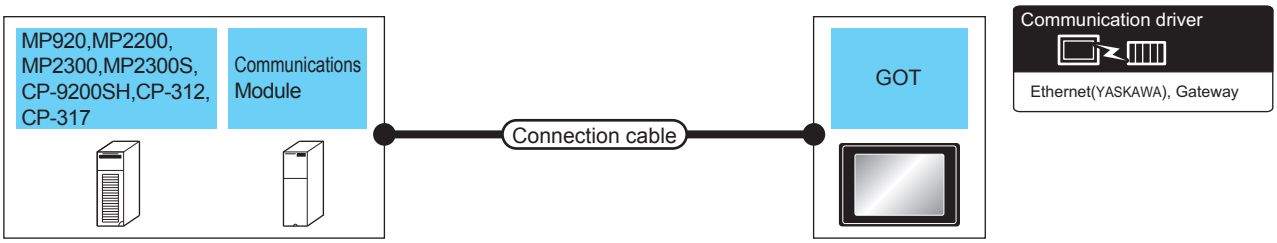

(Continued to next page)




*1: Set 0 to the PARAM08 to 11 of the MSG_RCV (input relay, input register, coil, holding register offset). (Do not make the offset settings.) When the offset is needed, set [Option] → [Offset] to each object or make a setting added the offset value to the device.

# 6.3 Ethernet Connection

## 6.3.1 System configuration for connecting to MP-920 or MP2200 or MP2300 or MP2300S or CP-9200SH or CP-312 or CP-317




| PLC | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Model name | Communication module*3 | Cable model*1 | Maximum segment length*2 | Option device | Model | |
| MP-920 | 218IF | • 100BASE-TX<br>Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 5 or higher<br>• 10BASE-T<br>Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 3 or higher | 100m | - (Built into GOT) | GT27 GT25 GT23 | When PLC (module):GOT is N:1<br>The following shows the number of PLCs for 1 GOT<br>TCP: 128 or less<br>UDP: 128 or less<br><br>When PLC (module):GOT is 1:N<br>The following shows the number of GOTs for 1 PLC (module)<br>TCP/UDP: 10 or less |
| MP2200<br>MP2300<br>MP2300S | 218IF-01<br>218IF-02 | | | | | |
| MP2300S | — | | | | | |
| CP-9200SH<br>CP-312 | CP-218IF | | | | | |
| CP-317 | 218TXB | | | | | |

*1 The destination connected with the twisted pair cable varies with the configuration of the applicable Ethernet network system. Connect to the Ethernet module, hub, transceiver or other system equipment corresponding to the applicable Ethernet network system.
Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standards.

*2 A length between a hub and a node.
The maximum distance differs depending on the Ethernet device to be used.
The following shows the number of the connectable nodes when a repeater hub is used.
- 10BASE-T: Max. 4 nodes for a cascade connection (500m)
- 100BASE-TX: Max. 2 nodes for a cascade connection (205m)

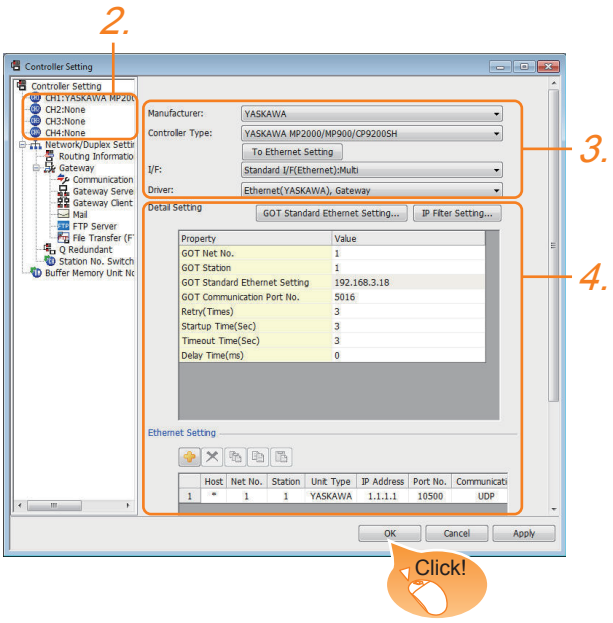
When switching hubs are used, the cascade connection between the switching hubs has no logical limit for the number of cascades.
For the limit, contact the switching hub manufacturer.

*3 Product manufactured by YASKAWA Electric Corporation. For details of the product, contact YASKAWA Electric Corporation.

## 6.3.2 GOT Side Settings

### ■ Setting communication interface (Communication settings)

Set the channel of the connected equipment.




1. Select [Common] → [Controller Setting] from the menu.
2. The Controller Setting window is displayed. Select the channel to be used from the list menu.
3. Set the following items.
   - Manufacturer: YASKAWA
   - Controller Type: YASKAWA MP2000/MP900/CP9200SH
   - I/F: Interface to be used
   - Driver: Ethernet (YASKAWA), Gateway
4. The detailed setting is displayed after Manufacturer, Controller Type, I/F, and Driver are set.
   Make the settings according to the usage environment.
   ☞ 6.3.2 ■ Communication detail settings

Click the [OK] button when settings are completed.

**POINT**

The settings of connecting equipment can be confirmed in [I/F Communication Setting].
For details, refer to the following.
☞ 1.1.2 I/F communication setting

### ■ Communication detail settings

Make the settings according to the usage environment.

| Property | Value |
|---|---|
| GOT Net No. | 1 |
| GOT Station | 1 |
| GOT Ethernet Setting | 192.168.3.18 |
| GOT Communication Port No. | 5016 |
| Retry(Times) | 3 |
| Startup Time(Sec) | 3 |
| Timeout Time(Sec) | 3 |
| Delay Time(ms) | 0 |

| Item | Description | Range |
|---|---|---|
| GOT Net No. | Set the network No. of the GOT. (Default: 1) | 1 to 239 |
| GOT Station*1 | Set the station No. of the GOT. (Default: 1) | 1 to 64 |
| GOT Ethernet Setting | Set the GOT IP address, subnet mask, default gateway, peripheral S/W communication port No., transparent port No. | |
| GOT Communication Port No. | Set the GOT port No. for the connection with the Ethernet module. (Default: 5016) | 1024 to 5010, 5014 to 65534 (Except for 5011, 5012, 5013 and 49153) |
| Retry | Set the number of retries to be performed when a communication timeout occurs. When receiving no response after retries, the communication times out. (Default: 3times) | 0 to 5times |
| Startup Time | Specify the time period from the GOT startup until GOT starts the communication with the PLC CPU. (Default: 3sec) | 3 to 255sec |
| Timeout Time | Set the time period for a communication to time out. (Default: 3sec) | 1 to 90sec |
| Delay Time | Set the delay time for reducing the load of the network/destination PLC. (Default: 0ms) | 0 to 10000(10ms) |

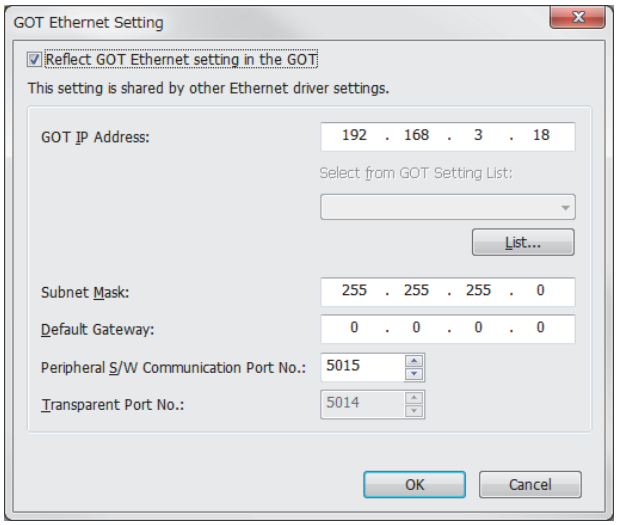
*1 Each of [GOT Station] set in the communication detail setting and [Station] set in the Ethernet setting must be set to different station numbers.
☞ ■ Ethernet setting

**POINT**

(1) Communication interface setting by the Utility
The communication interface setting can be changed on the Utility's [Communication setting] after writing [Communication Settings] of project data.
For details on the Utility, refer to the following manual.
☞ GOT2000 Series User's Manual (Utility)

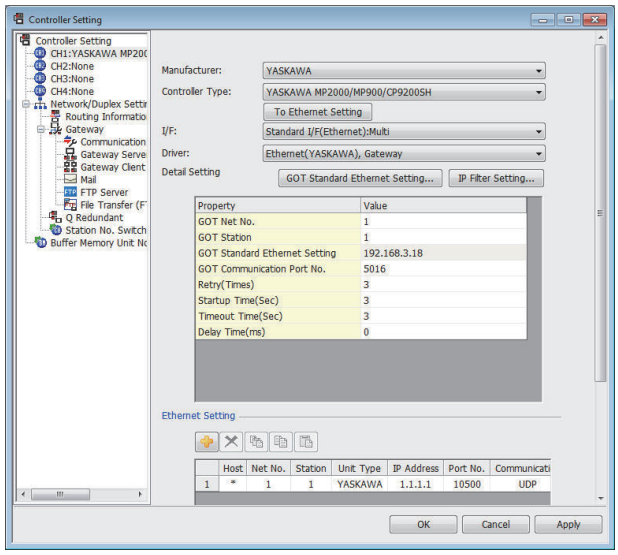
(2) Precedence in communication settings
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

## 6.3.3 GOT Ethernet setting




| Item | Description | Range |
|---|---|---|
| GOT IP Address | Set the IP address of the GOT. (Default: 192.168.0.18) | 0.0.0.0 to 255.255.255.255 |
| Subnet Mask | Set the subnet mask for the sub network.(Only for connection via router) If the sub network is not used, the default value is set. (Default: 255.255.255.0) | 0.0.0.0 to 255.255.255.255 |
| Default Gateway | Set the router address of the default gateway where the GOT is connected.(Only for connection via router) (Default: 0.0.0.0) | 0.0.0.0 to 255.255.255.255 |
| Peripheral S/W Communication Port No. | Set the GOT port No. for the S/W communication. (Default: 5015) | 1024 to 5010<br>5014 to 65534<br>(Except for 5011, 5012, 5013 and 49153) |
| Transparent Port No. | Set the GOT port No. for the transparent function. (Default: 5014) | 1024 to 5010<br>5014 to 65534<br>(Except for 5011, 5012, 5013 and 49153) |

### ■ Ethernet setting



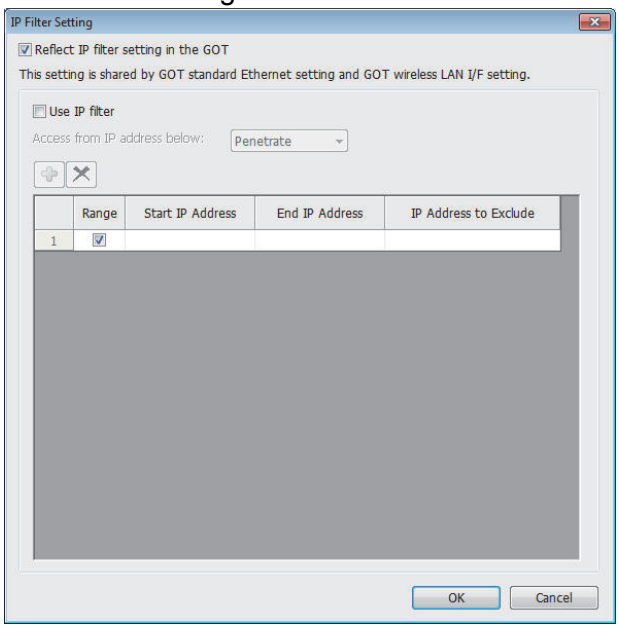

| Item | Description | Set value |
|---|---|---|
| Host | The host is displayed. (The host is indicated with an asterisk (*).) | — |
| Net No. | Set the network No. of the connected Ethernet module. (Default: blank) | 1 to 239 |
| Station*2 | Set the station No. of the connected Ethernet module. (Default: blank) | 1 to 64 |
| Type | YASKAWA (fixed) | YASKAWA (fixed) |
| IP address*1 | Set the IP address of the connected Ethernet module. (Default: blank) | PLC side IP address |
| Port No. | Set the port No. of the connected Ethernet module. (Default: 10500) | 256 to 65534 |
| Communication format | Select a communication protocol. (Default: UDP) | UDP, TCP |

*1 Connection with the PLC is unavailable if the IP address is the default value. Set the value to the IP address of the PLC to be connected.

*2 Each of [GOT Station] set in the communication detail setting and [Station] set in the Ethernet setting must be set to different station numbers.

■ Communication detail settings

## ■ IP Filter Setting




To improve security, the GOT 2000 series supports the IP Filter Setting.
For details on the IP Filter Setting, refer to the following manual.

☞ GT Designer3 (GOT2000) Help

# 6.3.4 PLC side setting (MP2000 series, MP920 series)

POINT

YASKAWA PLC
For details of YASKAWA PLCs, refer to the following manuals.

☞ YASKAWA PLC user's Manual

## ■ Parameter settings

Make the parameter settings with a peripheral tool.

(1) Settings for 218IF-01

| Item | | Set value | Range |
|---|---|---|---|
| Parameter setting | Local IP Address | [ ].[ ].[ ].[ ] | PLC side IP address |
| | Response Time | 0 | Not required for communication with GOT |
| | Count of Retry (Number of Retries) | 0 | Not required for communication with GOT |
| | CNO *1 (Connection Number) | 1 | 1 to 20 |
| | Local Port (Local Station's Port Number) | 10500 | 256 to 65534 |
| | Node IP Address (Remote Station's IP Address)*2 | [ ].[ ].[ ].[ ] | IP address of GOT |
| | Node Port (Remote Station's Port Number)*2 | [ ] | Port No. of GOT |
| | Connection Type | UDP (recommended) | UDP/TCP |
| | Protocol Type | Extended MEMOBUS | Extended MEMOBUS, MEMOBUS, MELSEC, None, MODBUS/TCP |
| | Code | BIN | RTU, BIN, ACII |
| | Node Name (Remote Station's Name) | GOT1000 | Name of GOT |
| Local Port: TCP/IP Setting | Subnet Mask | [ ].[ ].[ ].[ ] | PLC side setting |
| | Gateway IP Address | [ ].[ ].[ ].[ ] | |
| | System Port No. (Diagnostic/ Engineering Port No.) | 10000 | |
| | TCP (Transmission Control Protocol) Zero Window Timer Value | 3 sec | |
| | TCP Retry Time | 500ms | |
| | TCP Close Time | 60 sec | |
| | IP Assemble Time | 30 sec | |
| | MAX. Packet Length | 1500 bytes | |

*1 When MITSUBISHI PLC and YASKAWA PLC are used together in the same network, do not set the same value for the Station of MITSUBISHI PLC and the CNO (Connection number) of YASKAWA PLC.

*2 Set the same the Node IP Address (Remote Station's IP Address) and the Node Port (Remote Station's Port Number) as the Local IP Address and the Local Port (Local Station's Port Number) on the GOT side.
For the Local IP Address and the Local Port (Local Station's Port Number) on the GOT side, refer to the following.

☞ 6.3.2 ■ Ethernet setting

(2) Setting for the built-in MP2300S Ethernet and 218IF-02

| Item | | Set value | Range |
|---|---|---|---|
| Transmission parameter setting | IP Address | [ ].[ ].[ ].[ ] | PLC side IP address |
| | Subnet Mask | [ ].[ ].[ ].[ ] | PLC side setting |
| | Gateway IP Address | [ ].[ ].[ ].[ ] | |
| | Device name | Arbitrary | Up to 16 one-byte characters |
| Transmission parameter detailed setting | Engineering Port | 256 to 65535 | For a connection with software MPE720 |
| | Response Time | 0 | Not required for communication with GOT |
| | Count of Retry (Number of Retries) | 0 | |
| Message communication of connection parameter setting | Connection Number | 1 | • Range of built-in MP2300S Ethernet: 1 to 4<br>• Range of 218IF-02: 1 to 20 |
| | Local Port | 10500 | 256 to 65534 |
| | Node IP Address*1 | [ ].[ ].[ ].[ ] | IP address of GOT |
| | Node Port *1 | [ ] | Port No. of GOT |
| | Connection Type | UDP (recommended) | TCP/UDP |
| | Protocol Type | Extended MEMOBUS | Extended MEMOBUS, MEMOBUS, MELSEC, None, MODBUS/TCP |
| | Code | BIN | RTU, BIN, ACII |
| | Node Name | Arbitrary | Up to 32 one-byte characters (16 two-byte characters) |

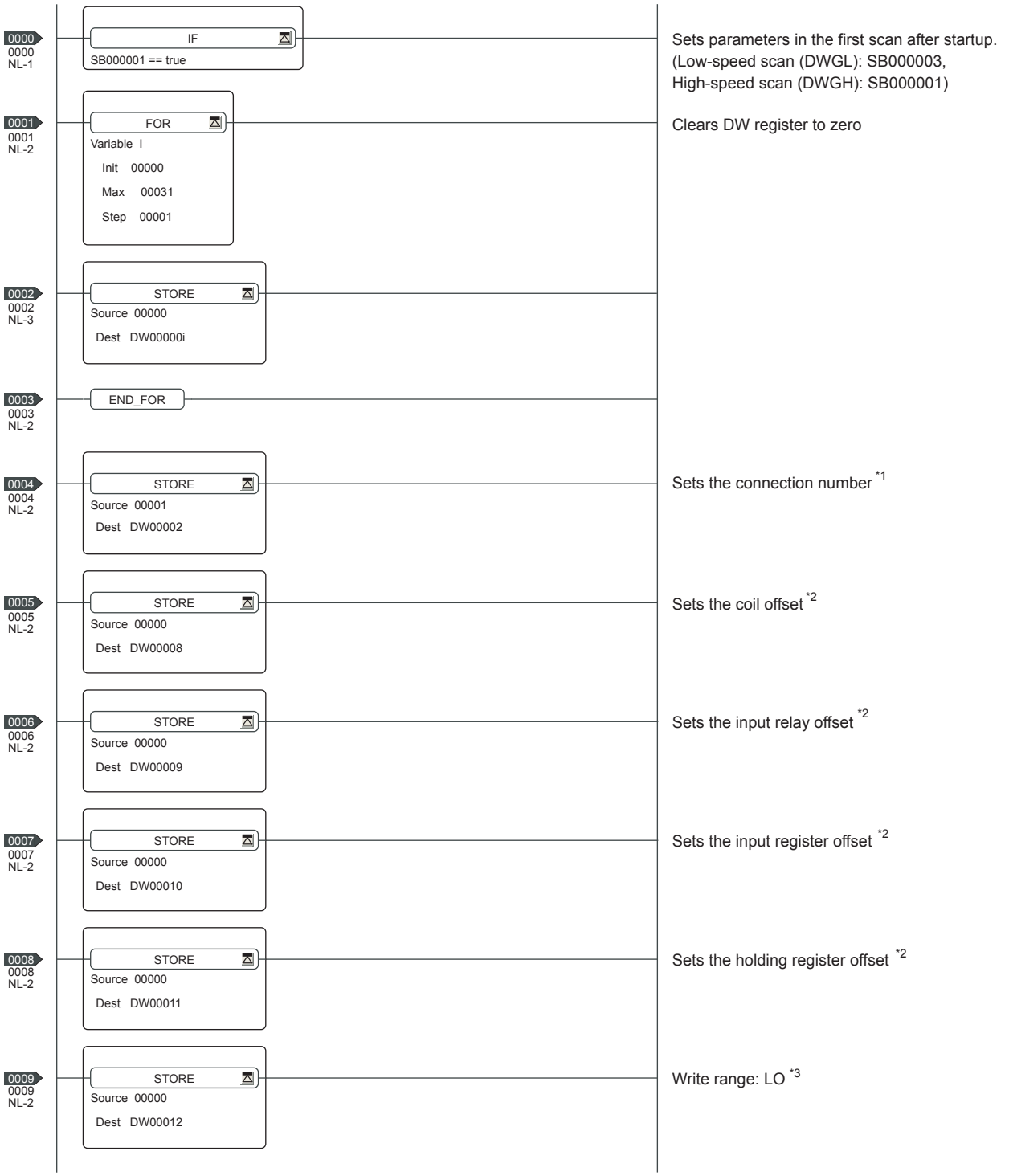
*1 Set the same the Node IP Address (Remote Station's IP Address) and the Node Port (Remote Station's Port Number) as the Local IP Address and the Local Port (Local Station's Port Number) on the GOT side.
For the Local IP Address and the Local Port (Local Station's Port Number) on the GOT side, refer to the following.

6.3.2 ■ Ethernet setting

## ■ Sequence program

To communicate the MP2000 series or MP920 series with the GOT1000 series, the ladder program to receive massages is required. When connecting the MP2000 series or MP920 series with multiple GOTs, ladder programs to receive messages for each GOT are required.

ladder program to receive massages

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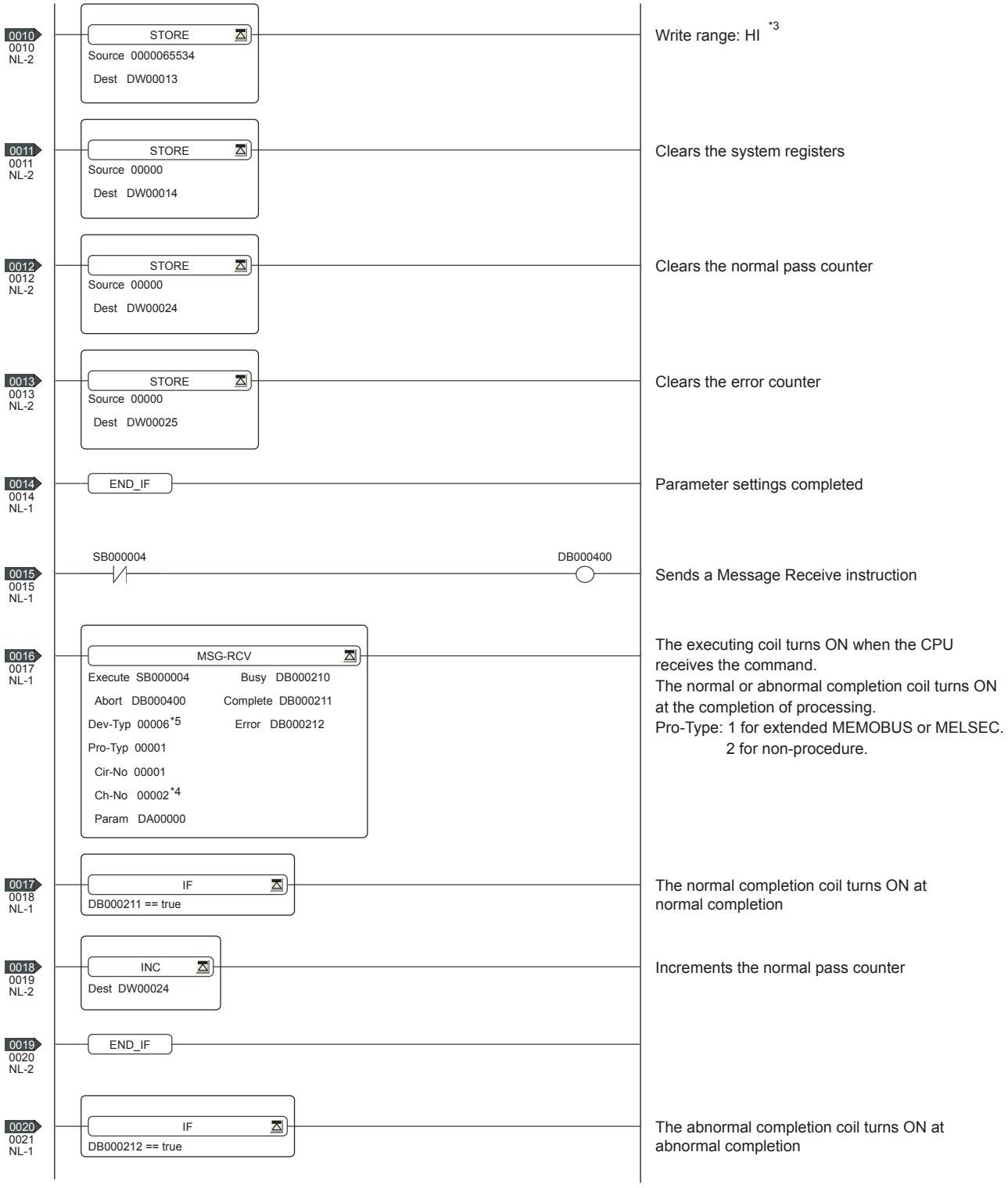
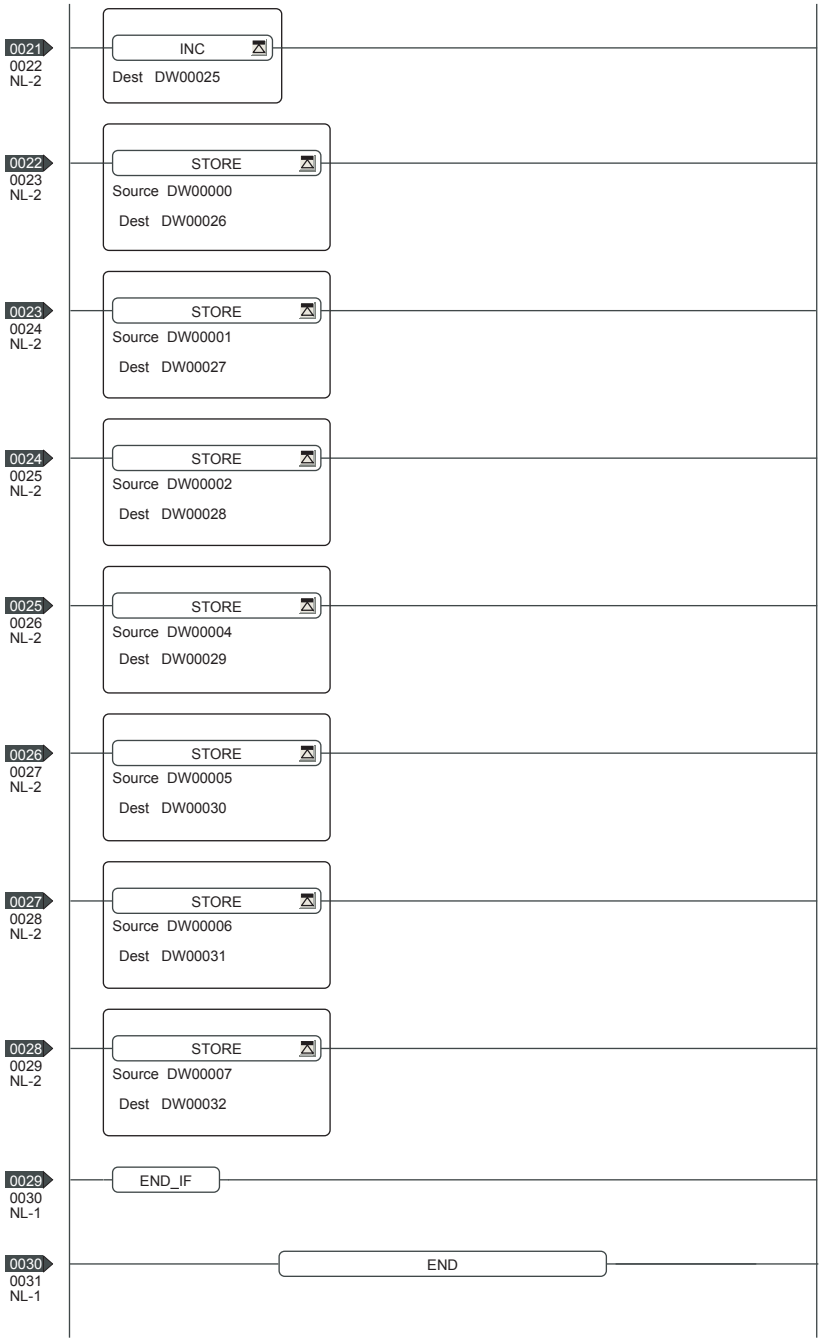

0010
0010
NL-2
STORE
Source 0000065534
Dest DW00013
Write range: HI *3
0011
0011
NL-2
STORE
Source 00000
Dest DW00014
Clears the system registers
0012
0012
NL-2
STORE
Source 00000
Dest DW00024
Clears the normal pass counter
0013
0013
NL-2
STORE
Source 00000
Dest DW00025
Clears the error counter
0014
0014
NL-1
END_IF
Parameter settings completed
0015
0015
NL-1
SB000004
DB000400
Sends a Message Receive instruction
0016
0017
NL-1
MSG-RCV
Execute SB000004
Busy DB000210
Abort DB000400
Complete DB000211
Dev-Typ 00006*5
Error DB000212
Pro-Typ 00001
Cir-No 00001
Ch-No 00002*4
Param DA00000
The executing coil turns ON when the CPU receives the command.
The normal or abnormal completion coil turns ON at the completion of processing.
Pro-Type: 1 for extended MEMOBUS or MELSEC.
2 for non-procedure.
0017
0018
NL-1
IF
DB000211 == true
The normal completion coil turns ON at normal completion
0018
0019
NL-2
INC
Dest DW00024
Increments the normal pass counter
0019
0020
NL-2
END_IF
0020
0021
NL-1
IF
DB000212 == true
The abnormal completion coil turns ON at abnormal completion




*1: When connecting to multiple GOTs, set connection numbers individually for each GOT.
*2: Set the offset for each device.
*3: Set the available write range for the holding registers.
*4: When connecting to multiple GOTs, set channel numbers individually for each GOT.
*5: Set the Dev-Typ of the message receive function <MSG-RCV> to [00016] for the built-in MP2300S Ethernet connection or the Ethernet port connection of 218IF-02.

## 6.3.5 PLC side setting (CP-9200SH series, CP-312, CP-317 series)

**POINT**

YASKAWA PLC

For details of YASKAWA PLCs, refer to the following manuals.

☞ YASKAWA PLC user's Manual

### ■ Parameter settings

Make the parameter settings with a peripheral tool.

(1) Settings for CP-218IF

| Item | Set value |
|---|---|
| Module Type | CP-218 |
| CPU Number | 01 |
| Circuit Number | 01 |
| Hot Swapping | ○ |

| Item | CNO 03 | CNO 04 | CNO 05 |
|---|---|---|---|
| Local Port | 10500 | 10501 | 10030 |
| Node IP Address*1 | 192.168.001.018 | 192.168.001.020 | 192.168.001.073 |
| Node Port*1 | 05016 | 05017 | 21001 |
| Connection Type | TCP | TCP | UDP |
| Protocol Type | Extended MEMOBUS | Extended MEMOBUS | Extended MEMOBUS |
| Code | BIN | BIN | BIN |

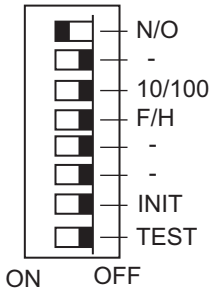
*1 Be sure to set the values above for the address so that the GOT communicates with the programmable controller correctly.
For the Host Address setting on the GOT side, refer to the following.
☞ 6.3.2 ■ Ethernet setting

(2) Settings for CP-218IF

| Item | | Set value |
|---|---|---|
| Transmission parameter setting | IP Address | IP address for 218TXB |
| | Response Time | Not required |
| | Count of Retry (Number of Retries) | Not required |
| Connection parameter setting | Connection Number | 1 |
| | Local Port | 10500 |
| | Node IP Address | Local IP address of GOT |
| | Node Port | Local port No. of GOT |
| | Connection Type | UDP |
| | Protocol Type | Extended MEMOBUS |
| | Code | BIN |
| | Node Name | Any string |

### ■ Settings by DIP switch

(1) Settings for 218TXB
Set the DIP switch (SW2) as follows.




| Setting Item | | Set value | Setting range |
|---|---|---|---|
| N/O | Mode Selection | ON | ON: Extended mode (13 channels, up to 1024 words)<br>OFF: Basic mode (10 channels, up to 512 words) |
| -*1 | Not used | OFF | - |
| 10/100 | Transmission Speed | OFF | ON :10Mbps<br>OFF :100Mbps |
| F/H | Transmission Mode | OFF | ON: Full duplex mode<br>OFF: Half duplex mode |
| INIT | Initial Startup | OFF | ON: Start up by the default IP address and the engineering port No.<br>OFF: Start up by the IP address and the engineering port No. set for CP-717 |
| TEST*2 | Test | OFF | ON: The module starts the self-diagnosis when the PLC is started.<br>OFF: The module does not start the self-diagnosis when the PLC is started. |

*1 Turn off all the unused switches.
When even one of those switches is on, the PLC may not normally operate.

*2 When the PLC is started with the TEST switch on, the module starts the self-diagnosis and may not perform the communication.
Turn off the switch before the communication is started.

## ■ Sequence program

To communicate the CP-9200SH series, CP-312 series, or CP-317 series with GOT1000 series, the ladder program to receive messages is required. When multiple GOTs are connected to the CP-9200SH series, CP-312 series, or CP-317 series, ladder programs to receive messages for each GOT are required.

ladder program to receive massages

```
1  0002  IFON

2  0003  FOR              I       = 00000      to  00031      by 00001

3  0007 ├ 00000                                          ⇒DW00000     ...=001          .../044

2  0009  FEND

2  0010 ├ 00003                                          DW-002
                                                         ⇒DW00002     ...=002

2  0012 ├ 00000                                          DW-008
                                                         ⇒DW00008     ...=003  *1

2  0014                                                  DW-009
                                                         ⇒DW00009     ...=004  *1

2  0015                                                  DW-010
                                                         ⇒DW00010     ...=005  *1

2  0016 ├ 16500                                          DW-011
                                                         ⇒DW00011     ...=006  *1

2  0018 ├ 16500                                          DW-012
                                                         ⇒DW00012     ...=007

2  0020 ├ 18499                                          DW-013
                                                         ⇒DW00013     ...=008

1  0022  IEND
```

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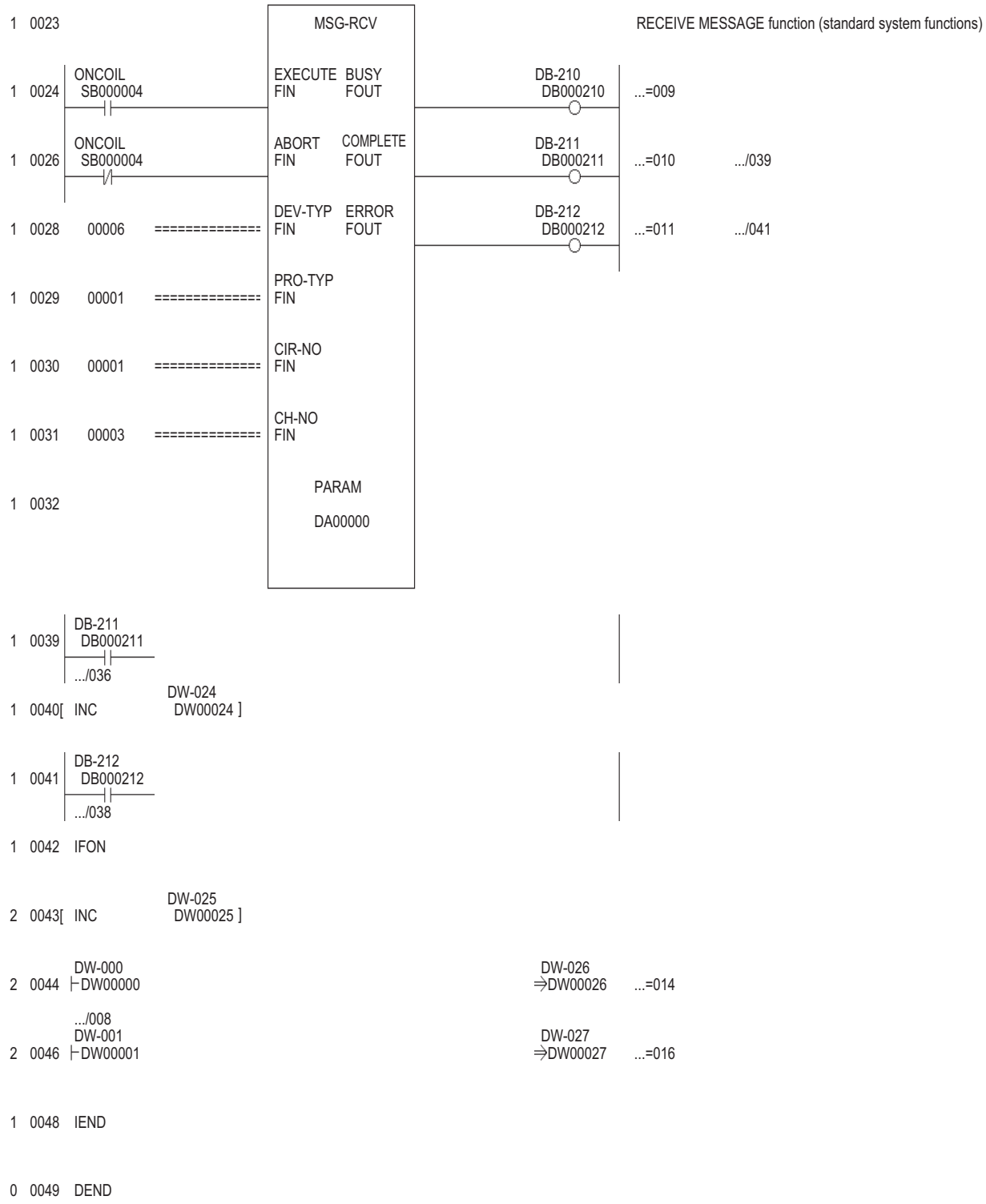



*1: Set 0 to PARAM08 to 11 of MSG_RCV (input relay, input register, coil, holding register offset). (Do not make the offset settings.) When the offset is needed, set [Option] → [Offset] to each object or make a setting added the offset value to the device.

## 6.3.6 Precautions

### ■ When connecting to multiple GOTs

(1) Setting Station

When connecting two or more GOTs in the Ethernet network, set each [Station] to the GOT.

☞ 6.3.2 ■ Ethernet setting

(2) Setting IP address

Do not use the IP address "192.168.3.18" when using multiple GOTs.

A communication error may occur on the GOT with the IP address.

### ■ When setting IP address

Do not use "0" and "255" at the end of an IP address. (Numbers of *.*.*.0 and *.*.*.255 are used by the system.)

The GOT may not monitor the controller correctly with the above numbers.

Consult with the administrator of the network before setting an IP address to the GOT and controller.

### ■ When connecting to the multiple network equipment (including GOT) in a segment

By increasing the network load, the transmission speed between the GOT and PLC may be reduced.

The following actions may improve the communication performance.

- Using a switching hub
- More high speed by 100BASE-TX (100Mbps)
- Reduction of the monitoring points on GOT

# 6.4 Device Range that Can Be Set

The device ranges of controller that can be used for GOT are as follows.

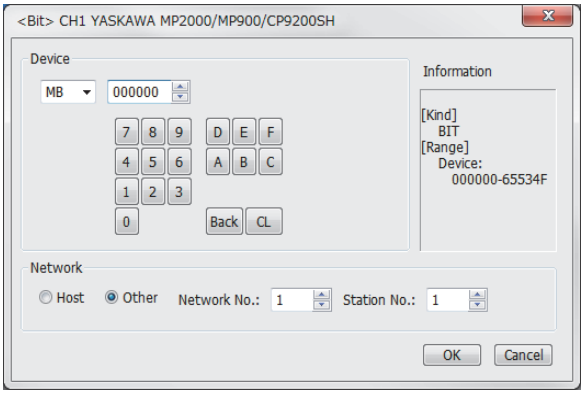
Note that the device ranges in the following tables are the maximum values that can be set in GT Designer3.

The device specifications of controllers may differ depending on the models, even though belonging to the same series.

Please make the setting according to the specifications of the controller actually used.

When a non-existent device or a device number outside the range is set, other objects with correct device settings may not be monitored.

## ■ Setting item



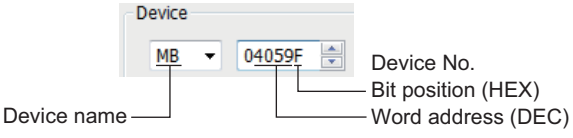

| Item | | Description |
|---|---|---|
| Device | | Set the device name, device number, and bit number.<br>The bit number can be set only when specifying the bit of word device. |
| Information | | Displays the device type and setting range which are selected in [Device]. |
| Network | | Set the station number of the controller to be monitored. |
| | Host | Select this item for monitoring the host controller. |
| | Other | Select this for monitoring other controllers.<br>After selecting, set the station number of the controller to be monitored.<br>NW No.: Set the network No.<br>Station No.: Set the station No. |

**POINT**

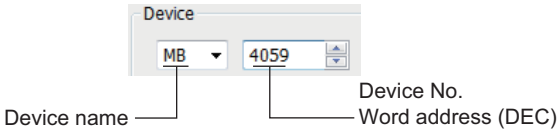
Device settings of YASKAWA PLC
(when using CP-9200SH, CP-9300MS, MP-920, MP-930)

Set the coil device (MB) as follows:

(1) When setting as a bit device
Set the device using the format of word address (DEC) + bit number (HEX).




(2) When setting as a word device
Set the device using the format of word address (DEC).




## 6.4.1 YASKAWA GL/PROGIC8

| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | Coil (O)*5 | O1 to O63424 | Decimal |
| | Input relay (I)*6*7 | I1 to I63424 | |
| | Link coil (D) | D1 to D2048 | |
| | | D10001 to D12048<br>D20001 to D22048 | |
| | The bit specification of the word device | Setting range of each word device | — |
| Word device | Input register (Z) *1*7 | Z1 to Z31840 | Decimal |
| | Holding register (W)*2*4 | W1 to W28291 | |
| | | SW1 to SW28291 | |
| | Link register (R, SR)*4 | R1 to R2048 | |
| | | R10001 to R12048<br>R20001 to R22048 | |
| | | SR1 to SR2048 | |
| | | SR10001 to SR12048<br>SR20001 to SR22048 | |
| | Constant register (K)*3 | K1 to K4096 | |
| | The word specification of the bit device (except Coil, Input relay) | Setting range of each bit devices | — |

*1 Change the input register "30001 to 30512" to "Z1 to Z512" for setting. (When set in default)
*2 Change the holding register "40001 to 49999" to "W1 to W9999" for setting. (When set in default)
*3 Change the constant register "31001 to 35096" to "K1 to K4096" for setting. (When set in default)

(Continued to next page)

*4 SR and SW indicate registers (virtual register) compatible to the data format where internal data of PLC is displayed using R or W.
The following shows the difference between the display values of SR, SW and those of R, W corresponding to the values of PLC internal data.

| PLC internal data (16 bit) | SR, SW | R, W |
|---|---|---|
| 9999 | 9999 | 9999 |
| 1001 | 1001 | 1001 |
| 1000 | 1000 | 1000 |
| 999 | 999 | 999 |
| 0 | 0 | 0 |
| -1 | -1 | 32769 |
| -999 | -999 | 33767 |
| -1000 | -1000 | 33768 |
| -1001 | -1001 | 33769 |
| -9999 | -9999 | 42767 |

*5 The internal coil N1 to N1536 can be set as O513 to O2048. However, setting must not exceed O1 to O512 and O513 to O2048.
*6 Change the input relay "10001 to 14096" to "I1 to I4096" for setting. (When set in default)
*7 Only reading is possible.

## 6.4.2 YASKAWA CP9200SH/MP900

| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | Coil (MB)*1 | MB000000 to MB32767F | Decimal + Hexadecimal |
| | Input relay (IB) | MB000000 to MB32767F | Hexadecimal |
| | Word device bit | Specified bit of the following word devices input register, holding register | — |
| Word device | Input register (IW) | IW0000 to IW7FFF | Hexadecimal |
| | Holding register (MW) | MW0 to MW32767 | Decimal |
| | Coil (MB) | MB0 to MB32767 | Decimal |
| | Input relay (IB) | IB000 to IBFFF | Hexadecimal |

*1 MB40960 to MB32767F is available for MP-940 only.

## 6.4.3 YASKAWA CP9200 (H)

| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | Coil (OB)*3 | OB000 to OB7FF | Hexadecimal |
| | Coil (OB)*3 | IB000 to IB7FF | |
| | The bit specification of the word device | Setting range of each word device | — |
| Word device | Input register (IW) | IW00 to IW7F | Hexadecimal |
| | Output register (OW) | OW00 to OW7F | |
| | Data register (DW, ZD)*1 | DW0 to DW2047 | Decimal |
| | | ZD0 to ZD2047 | |
| | Common register (MW)*2 | MW0 to MW7694 | |
| | The word specification of the bit device | Setting range of each bit devices | — |

*1 Setting is available only when CP-9200H is used.
*2 To use data registers of CPU #1 during operation of CP-9200, copy them to MW0 to 7694.
*3 During operation of CP-9200H, specify the reference No. and quantities so that they do not cover both OB*** and IB***.

## 6.4.4 YASKAWA CP9300MS (MC compatible)

| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | Coil (OB) | OB0 to OB1023 | Decimal |
| | Input relay (IB) | IB0 to IB1023 | |
| | The bit specification of the word device | Setting range of each word device | — |
| Word device | Input register (I) | I0 to I63 | Decimal |
| | Data register (M) | M0 to M2047 | |
| | Output register (o) | o0 to o63 | |
| | The word specification of the bit device | Setting range of each bit devices | — |

## 6.4.5 YASKAWA MP2000/MP900/ CP9200SH Series

| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | Coil (MB) | MB000000 to MB65534F | Decimal + Hexadecimal |
| | Input relay (IB)*1 | IB00000 to IB7FFFF | Hexadecimal |
| | The bit specification of the word device*2 | Setting range of each bit devices | — |
| Word device | Input register (IW)*1 | IW0000 to IW7FFF | Hexadecimal |
| | Holding register (MW) | MW0 to MW65534 | Decimal |
| | The word specification of the bit device | Setting range of each word device | — |

*1 Only reading is possible.
*2 For CP-317, the bit access of word device (MW) is enabled for reading only.

# 7

# CONNECTION TO YOKOGAWA PLC


7.1 Connectable Model List . . . . . 7 - 2
7.2 Serial Connection . . . . . 7 - 3
7.3 Ethernet Connection . . . . . 7 - 16
7.4 Device Range that Can Be Set . . . . . 7 - 22

# 7. CONNECTION TO YOKOGAWA PLC

## 7.1 Connectable Model List

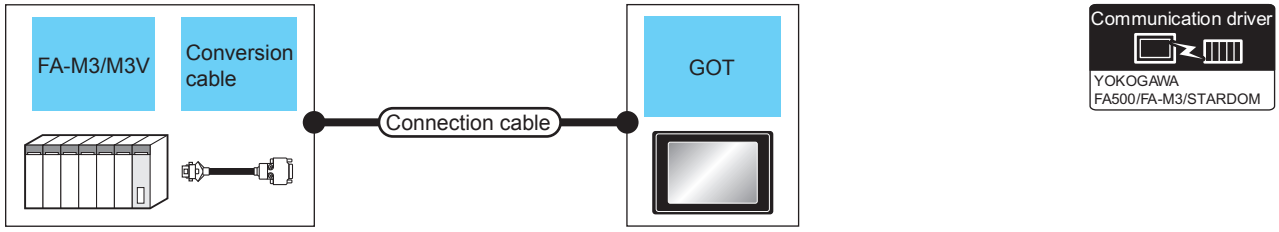
The following table shows the connectable models.

| Series | Model name | Clock | Communication Type | Connectable model | Refer to |
|---|---|---|---|---|---|
| FA-M3 | F3SP05 | ○ | RS-232<br>RS-422 | GT27 GT25 GT23 | 7.2.1 |
| | F3SP08 | | | | |
| | F3SP10 | | | | |
| | F3SP20 | | | | |
| | F3SP30 | | | | |
| | F3FP36 | | | | |
| | F3SP21 | | | | |
| | F3SP22-0S | | | | |
| | F3SP25 | | | | |
| | F3SP35 | | | | |
| | F3SP28 | | | | |
| | F3SP38 | | | | |
| | F3SP53 | | | | |
| | F3SP58 | | | | |
| | F3SP59 | | | | |
| | F3SP66 | | | | |
| | F3SP67 | | | | |
| FA-M3V | F3SP76-7S | | | | |
| | F3SP71-4S | | | | |
| FA500 | FA500 | ○ | RS-232<br>RS-422 | GT27 GT25 GT23 | 7.2.2 |
| STARDOM | NFCP100 | × | RS-232 | GT27 GT25 GT23 | 7.2.3 |
| | NFJT100 | | | | |
| FA-M3 | F3SP05 | ○ | Ethernet | GT27 GT25 GT23 | 7.3.1 |
| | F3SP08 | | | | |
| | F3FP36 | | | | |
| | F3SP21 | | | | |
| | F3SP25 | | | | |
| | F3SP35 | | | | |
| | F3SP28 | | | | |
| | F3SP38 | | | | |
| | F3SP53 | | | | |
| | F3SP58 | | | | |
| | F3SP59 | | | | |
| | F3SP66 | | | | |
| | F3SP67 | | | | |
| FA-M3V | F3SP71-4N | | | | |
| | F3SP76-7S | | | | |
| | F3SP71-4S | | | | |

# 7.2 Serial Connection

## 7.2.1 System configuration for connecting to FA-M3/M3V

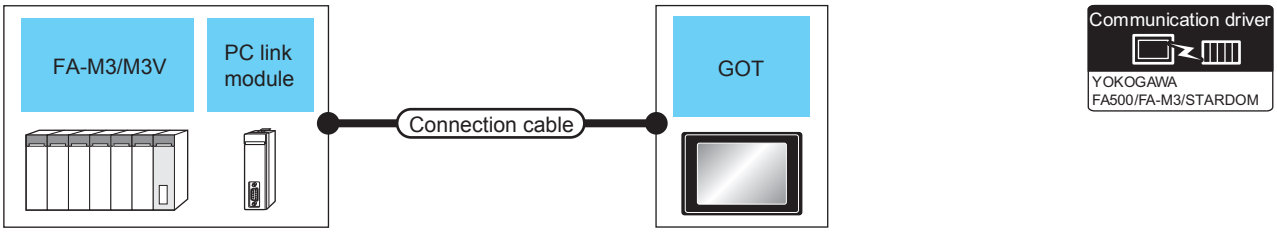
■ When using the conversion cable




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | Conversion cable*1 | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| F3SP05<br>F3SP08<br>F3SP21<br>F3SP22-0S<br>F3SP25<br>F3SP28<br>F3SP35<br>F3SP38<br>F3SP53<br>F3SP58<br>F3SP59 | KM10-0C*2 | RS-232 | GT09-C30R20301-9P(3m)<br>or<br>User preparing RS-232 connection diagram 1) | 15m*4 | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 PLC |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| F3SP66<br>F3SP67 | KM10-0S*3 | RS-232 | GT09-C30R20301-9P(3m)<br>or<br>User preparing RS-232 connection diagram 1) | 15m*4 | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by YOKOGAWA Electric Corporation. For details of the product, contact Yokogawa Electric Corporation.
*2 CPU port/D-Sub 9-pin conversion cable
*3 SIO port adapter cable
*4 Including the length of the CPU port/D-Sub 9-pin conversion cable or the SIO port adapter cable.

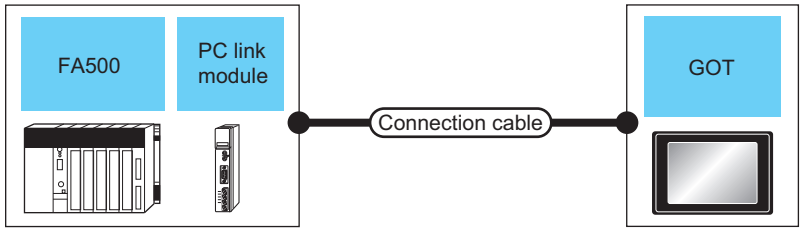
■ When using the PC link module




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | PC link module*1 | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| F3SP05<br>F3SP08<br>F3SP10<br>F3SP20<br>F3SP30<br>F3FP36<br>F3SP21<br>F3SP25<br>F3SP35<br>F3SP28<br>F3SP38<br>F3SP53<br>F3SP58<br>F3SP59<br>F3SP66<br>F3SP67 | F3LC01-1N<br>F3LC11-1N<br>F3LC11-1F<br>F3LC12-1F | RS-232 | GT09-C30R20302-9P(3m)<br>or<br>User preparing RS-232 connection diagram 2) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 PC link module |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| F3SP76-7S<br>F3SP71-4S | F3LC12-1F | | | | | | |
| F3SP05<br>F3SP08<br>F3SP20<br>F3SP30<br>F3FP36<br>F3SP21<br>F3SP25<br>F3SP35<br>F3SP28<br>F3SP38<br>F3SP53<br>F3SP58<br>F3SP59<br>F3SP66<br>F3SP67<br>F3SP71-4S | F3LC11-2N | RS-422 | GT09-C30R40301-6T(3m)<br>GT09-C100R40301-6T(10m)<br>GT09-C200R40301-6T(20m)<br>GT09-C300R40301-6T(30m)<br>or<br>User preparing RS-422 connection diagram 1) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | GT15-RS4-9S | GT27 GT25 | |

*1 Product manufactured by YOKOGAWA Electric Corporation. For details of the product, contact Yokogawa Electric Corporation.

## 7.2.2 System configuration for connecting to FA500

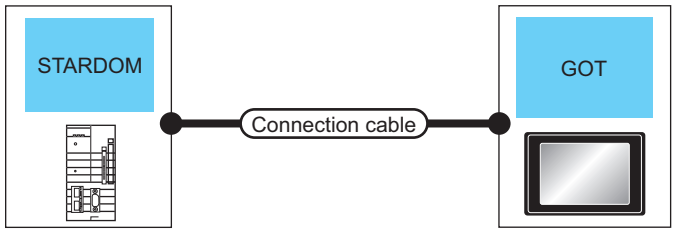



Communication driver
YOKOGAWA
FA500/FA-M3/STARDOM

| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Series | PC link module*1 | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| FA500 | LC01-0N<br>LC02-0N | RS-232 | GT09-C30R20205-25P(3m)<br>or<br>User preparing RS-232 connection diagram 3) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 PC link module |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | LC02-0N | RS-422 | GT09-C30R40302-6T(3m)<br>GT09-C100R40302-6T(10m)<br>GT09-C200R40302-6T(20m)<br>GT09-C300R40302-6T(30m)<br>or<br>User preparing RS-422 connection diagram 2) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | GT15-RS4-9S | GT27 GT25 | |

*1 Product manufactured by YOKOGAWA Electric Corporation. For details of the product, contact Yokogawa Electric Corporation.

## 7.2.3 System configuration for connecting to STARDOM




Communication driver
YOKOGAWA
FA500/FA-M3/STARDOM

| PLC | | Connection cable*1 | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Series | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| STARDOM | RS-232 | GT09-C30R20305-9S(3m)<br>or<br>User preparing RS-232 connection diagram 2) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 PLC |
| | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Connect the connection cable to the COM port of the PLC.

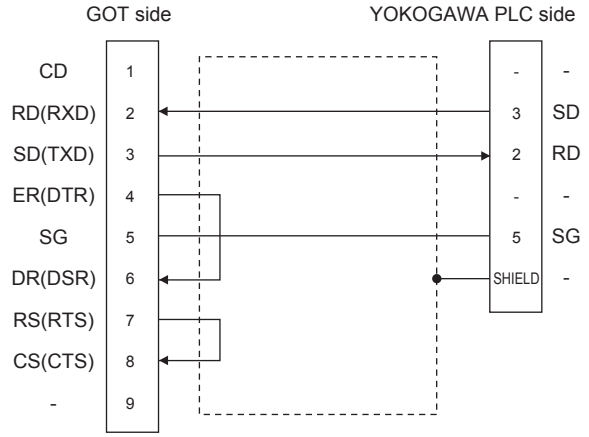
## 7.2.4 Connection diagram

The following diagram shows the connection between the GOT and the PLC.

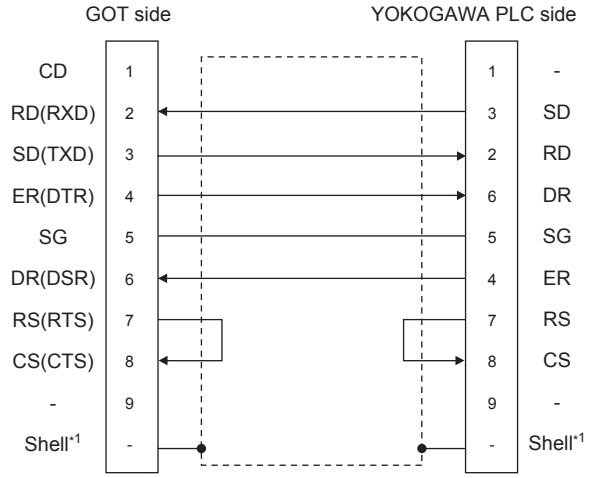
### ■ RS-232 cable

(1) Connection diagram

(a) RS-232 connection diagram 1)

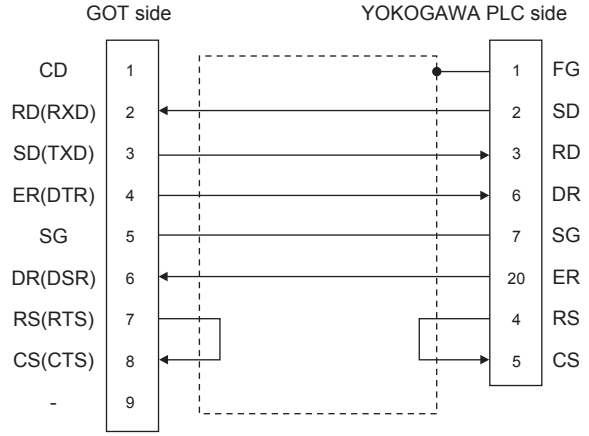



(b) RS-232 connection diagram 2)




*1 Connect the shield to the housing of the connectors on both the GOT and YOKOGAWA product sides.

(c) RS-232 connection diagram 3)




(2) Precautions when preparing a cable

(a) Cable length
The length of the RS-232 cable must be 15m or less.

(b) GOT side connector
For the GOT side connector, refer to the following.

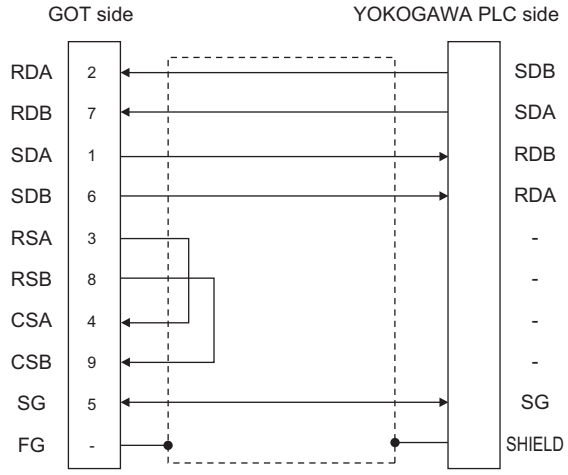
☞ 1.4.1 GOT connector specifications

(c) YOKOGAWA PLC side connector
Use the connector compatible with the YOKOGAWA PLC side module.
For details, refer to the YOKOGAWA PLC user's manual.

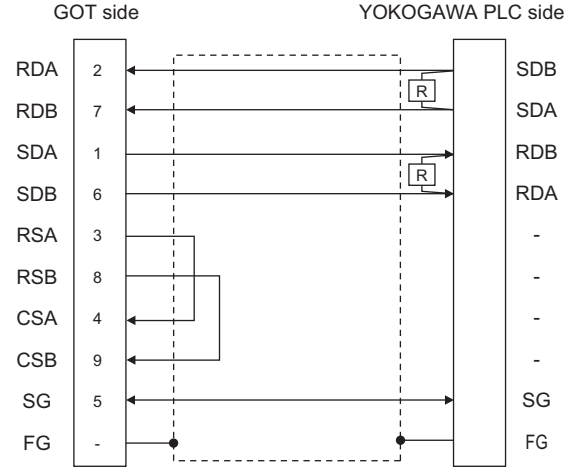
## ■ RS-422 cable

(1) Connection diagram

(a) RS-422 connection diagram 1)




(b) RS-422 connection diagram 2)




(2) Precautions when preparing a cable

(a) Cable length
The length of the RS-422 cable must be 1200m or less.

(b) GOT side connector
For the GOT side connector, refer to the following.

☞ 1.4.1 GOT connector specifications

(c) YOKOGAWA PLC side connector
Use the connector compatible with the YOKOGAWA PLC side module.
For details, refer to the YOKOGAWA PLC user's manual.

(3) Connecting terminating resistors

(a) GOT side
Set the terminating resistor setting switch of the GOT main unit to "Disable".
For the procedure to set the terminating resistor, refer to the following.

☞ 1.4.3 Terminating resistors of GOT

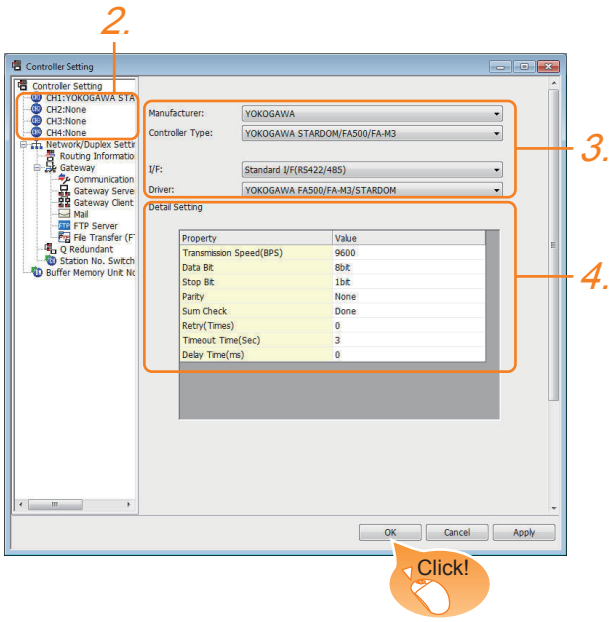
(b) YOKOGAWA PLC side
When connecting a PLC link module to a GOT, a terminating resistor must be connected to the PC link module.
The following describes how to connect it on the PC link module.

- F3LC11-2N
  Set the terminator switch (TERMINATOR) on the front panel of F3LC11-2N to the "4-WIRE" side to enable the terminator.
- LC02-0N
  Connect the terminating resistor provided with the LC02-0N across SDA and SDB, and across RDA and RDB on the terminal block.

## 7.2.5 GOT side settings

### ■ Setting communication interface (Communication settings)

Set the channel of the connected equipment.




1. Select [Common] → [Controller Setting] from the menu.
2. The Controller Setting window is displayed. Select the channel to be used from the list menu.
3. Set the following items.
   - Manufacturer: YOKOGAWA
   - Controller Type: YOKOGAWA STARDOM/FA500/FA-M3
   - I/F: Interface to be used
   - Driver: YOKOGAWA FA500/FA-M3/STARDOM
4. The detailed setting is displayed after Manufacturer, Controller Type, I/F, and Driver are set.
   Make the settings according to the usage environment.
   7.2.5■Communication detail settings

Click the [OK] button when settings are completed.

**POINT**

The settings of connecting equipment can be confirmed in [I/F Communication Setting].
For details, refer to the following.
1.1.2 I/F communication setting

### ■ Communication detail settings

Make the settings according to the usage environment.

| Property | Value |
|---|---|
| Transmission Speed(BPS) | 9600 |
| Data Bit | 8 bit |
| Stop Bit | 1 bit |
| Parity | None |
| Sum Check | Done |
| Retry(Times) | 0 |
| Timeout Time(Sec) | 3 |
| Delay Time(ms) | 0 |

| Item | Description | Range |
|---|---|---|
| Transmission Speed | Set this item when change the transmission speed used for communication with the connected equipment.<br>(Default: 9600bps) | 4800bps,<br>9600bps,<br>19200bps,<br>38400bps,<br>57600bps,<br>115200bps |
| Data Bit | Set this item when change the data length used for communication with the connected equipment.<br>(Default: 8bits) | 7bits/8bits |
| Stop Bit | Specify the stop bit length for communications.<br>(Default: 1bit) | 1bit/2bits |
| Parity | Specify whether or not to perform a parity check, and how it is performed during communication.<br>(Default: No) | None<br>Even<br>Odd |
| Sum Check | Set whether or not to perform a sum check during communication.<br>(Default: Yes) | Yes or No |
| Retry | Set the number of retries to be performed when a communication timeout occurs. When receiving no response after retries, the communication times out.<br>(Default: 0time) | 0 to 5times |
| Timeout Time | Set the time period for a communication to time out.<br>(Default: 3sec) | 1 to 30sec |
| Delay Time | Set this item to adjust the transmission timing of the communication request from the GOT.<br>(Default: 0ms) | 0 to 300(ms) |

**POINT**

(1) Communication interface setting by the Utility
The communication interface setting can be changed on the Utility's [Communication setting] after writing [Communication Settings] of project data.
For details on the Utility, refer to the following manual.
GOT2000 Series User's Manual (Utility)

(2) Precedence in communication settings
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

## 7.2.6 PLC side setting

POINT

YOKOGAWA PLC

For details of YOKOGAWA PLCs, refer to the following manuals.

☞ YOKOGAWA PLC user's Manual

| Model name | | Refer to |
|---|---|---|
| CPU port/D-Sub 9-pin conversion cable | KM10-0C | 7.2.7 |
| SIO port adapter cable | KM10-0S | |
| PC link module | F3LC01-1N | 7.2.8 |
| | F3LC11-1N | |
| | F3LC11-2N | |
| | F3LC11-1F | 7.2.9 |
| | F3LC12-1F | |
| | LC01-0N | 7.2.10 |
| | LC02-0N | |
| STARDOM | | 7.2.11 |

## 7.2.7 Connecting to CPU port/D-sub 9-pin conversion cable, SIO port adapter cable

### ■ Setting of PLC CPU

Make the PLC CPU settings, displaying [Configuration] → [Communication Settings] with the program development tool or the ladder-programming tool.

<table>
<tr><th>Item</th><th>Set value</th></tr>
<tr><td>Communication mode*1</td><td>Set the communication mode of the CPU (transmission speed and data format).<br>Set the transmission speed and data format according to settings of the transmission speed, data length, parity and stop bit on the GOT side.<br>For details on these GOT side settings, refer to the following.<br>☞ 7.2.5Setting communication interface (Communication settings)
<table>
<tr><th rowspan="2">Item</th><th colspan="4">Transmission speed and data format</th></tr>
<tr><th>Transmission speed</th><th>Data bit</th><th>Parity</th><th>Stop bit</th></tr>
<tr><td>Communication mode 0</td><td>9600 bps</td><td>8bits</td><td>Even</td><td>1bit</td></tr>
<tr><td>Communication mode 1</td><td>9600 bps</td><td>8bits</td><td>None</td><td>1bit</td></tr>
<tr><td>Communication mode 2</td><td>19200 bps</td><td>8bits</td><td>Even</td><td>1bit</td></tr>
<tr><td>Communication mode 3</td><td>19200 bps</td><td>8bits</td><td>None</td><td>1bit</td></tr>
<tr><td>Communication mode 4</td><td>38400 bps</td><td>8bits</td><td>Even</td><td>1bit</td></tr>
<tr><td>Communication mode 5</td><td>38400 bps</td><td>8bits</td><td>None</td><td>1bit</td></tr>
<tr><td>Communication mode 6</td><td>57600 bps</td><td>8bits</td><td>Even</td><td>1bit</td></tr>
<tr><td>Communication mode 7</td><td>57600 bps</td><td>8bits</td><td>None</td><td>1bit</td></tr>
<tr><td>Communication mode 8</td><td>115200 bps</td><td>8bits</td><td>Even</td><td>1bit</td></tr>
<tr><td>Communication mode 9</td><td>115200 bps</td><td>8bits</td><td>None</td><td>1bit</td></tr>
</table></td></tr>
<tr><td>CPU PC link function settings</td><td>Set the following when using the CPU programming port as the PC link function.<br>Make the checksum setting according to the sum check setting on the GOT side.<br>For the sum check setting on the GOT side, refer to the following.<br>☞ 7.2.5 ■ Setting communication interface (Communication settings)
<table>
<tr><th>Item</th><th>Set value</th></tr>
<tr><td>Use of PC link function</td><td>Mark. (Use enabled)</td></tr>
<tr><td>Checksum</td><td>Mark. (ON)<br>Do not mark. (OFF)</td></tr>
<tr><td>End character</td><td>Do not mark. (OFF)</td></tr>
<tr><td>Protect function</td><td>Do not mark. (OFF)</td></tr>
</table></td></tr>
</table>

*1 The communication mode that can be selected differs according to the CPU.

## 7.2.8 Connecting PC link module (F3LC01-1N, F3LC11-1N, F3LC11-2N)

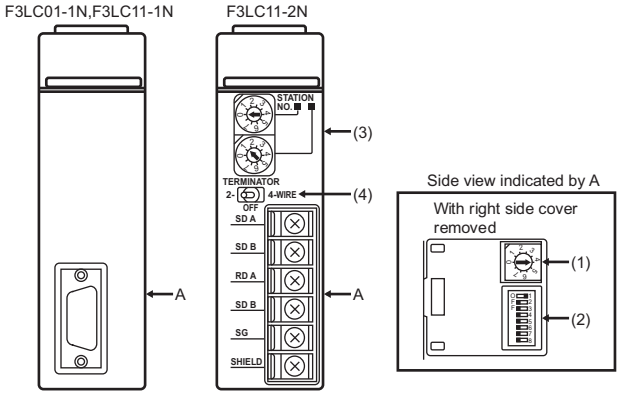
### ■ Switch setting on the PC link module

Set the switches accordingly.

**POINT**

Switch setting

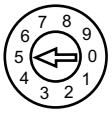
Set the switches before mounting the Ethernet Interface Module on the base unit.




(1) Transmission speed setting switch

Set the same transmission speed of the GOT.
For the transmission speed setting on the GOT side, refer to the following.

☞ 7.2.5 ■ Communication detail settings



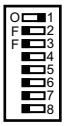

| Setting*1 | Transmission speed |
|---|---|
| 4 | 4800bps |
| 5 | 9600bps |
| 6 | 19200bps |

*1 Only transmission speeds available on the GOT side are shown.

(2) Data format setting switch

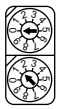
Set the data length, parity, stop bit and checksum consistent with the corresponding settings on the GOT side.
For the settings on the GOT side, refer to the following.

☞ 7.2.5 ■ Communication detail settings



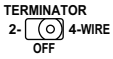

| Switch No. | Description | Settings |
|---|---|---|
| 1 | Data bit | ON (8bits),<br>OFF (7bits) |
| 2 | Parity | ON (done),<br>OFF (none) |
| 3 | | ON (even),<br>OFF (odd) |
| 4 | Stop bit | ON (2bits),<br>OFF (1bit) |
| 5 | Checksum | ON (done),<br>OFF (none) |
| 6 | End character specification | OFF (none) |
| 7 | Protect function | OFF (disabled) |
| 8 | — | OFF |

(3) Station No. switch (F3LC11-2N only)



| Rotary switch | Description | Settings |
|---|---|---|
| 1) | Station No. (10's digit) | 0 |
| 2) | Station No. (1's digit) | 1 |

(4) Terminator switch (F3LC11-2N only)




| Settings | Description |
|---|---|
| 4-WIRE | Resistor connected (4-wire type) |

## 7.2.9 Connecting PC link module (F3LC11-1F, F3LC12-1F)

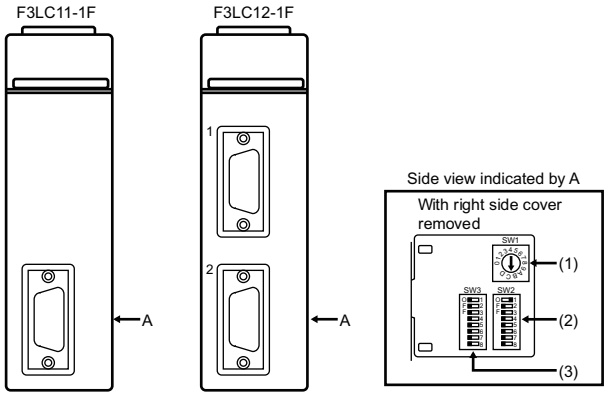
### ■ Switch setting on the PC link module

Set the switches accordingly.

**POINT**

Switch setting

Set the switches before mounting the Ethernet Interface Module on the base unit.




(1) Transmission speed switch (SW1)

Set the same transmission speed of the GOT.

For the transmission speed setting on the GOT side, refer to the following.

7.2.5 ■ Communication detail settings

| Setting*1 | Transmission speed |
|---|---|
| 4 | 4800bps |
| 5 | 9600bps |
| 7 | 19200bps |
| 9 | 38400bps |
| A | 57600bps |
| C | 115200bps |

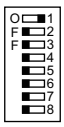
*1 Only transmission speeds available on the GOT side are shown.

(2) Data format switch (SW2)

Set the character length, parity, stop bit and checksum consistent with the corresponding settings on the GOT side.

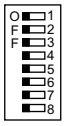
For the settings on the GOT side, refer to the following.

7.2.5 ■ Communication detail settings



| Switch No. | Description | Settings |
|---|---|---|
| 1 | Character length | ON (8bits),<br>OFF (7bits) |
| 2 | Parity | ON (done),<br>OFF (none) |
| 3 | | ON (even),<br>OFF (odd) |
| 4 | Stop bit | ON (2bits),<br>OFF (1bit) |
| 5 | Checksum | ON (done),<br>OFF (none) |
| 6 | End character specification | OFF (none) |
| 7 | Protect function | OFF (disabled) |
| 8 | Security function | OFF (disabled) |

(3) Module function switch (SW3)



| Switch No. | Description | Settings |
|---|---|---|
| 1 to 6 | User setting inhibited | OFF |
| 7 | Modem compatibility | OFF (not compatible) |
| 8 | External modem | OFF (none) |

## 7.2.10 Connecting PC link module (LC01-0N, LC02-0N)

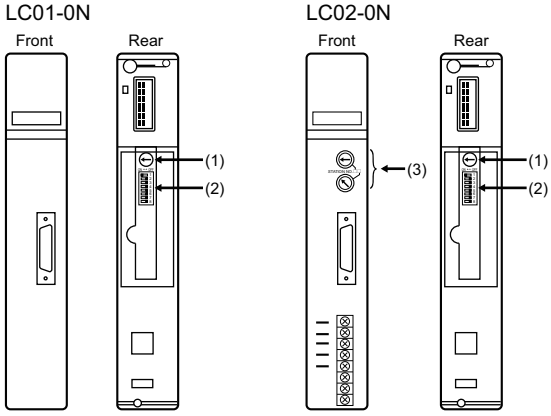
### ■ Switch setting on the PC link module

Set the switches accordingly.

**POINT**

Switch setting

Set the switches before mounting the Ethernet Interface Module on the base unit.




(1) Transmission speed setting switch

Set the same transmission speed of the GOT.

For the transmission speed setting on the GOT side, refer to the following.

7.2.5 ■ Communication detail settings

| Setting*1 | Transmission speed |
|---|---|
| 4 | 4800bps |
| 5 | 9600bps |
| 6 | 19200bps |

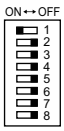
*1 Only transmission speeds available on the GOT side are shown.

(2) Data format setting switch

Set the data length, parity, stop bit and checksum consistent with the corresponding settings on the GOT side.

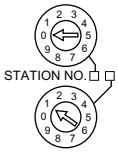
For the settings on the GOT side, refer to the following.

7.2.5 ■ Communication detail settings




| Switch No. | Description | Settings |
|---|---|---|
| 1 | Data bit | ON (8bits), OFF (7bits) |
| 2 | Parity | ON (done), OFF (none) |
| 3 | | ON (even), OFF (odd) |
| 4 | Stop bit | ON (2bits), OFF (1bit) |
| 5 | Checksum | ON (done), OFF (none) |
| 6 | End character specification | OFF (none) |
| 7 | Protect function | OFF (disabled) |
| 8 | — | OFF |

(3) Station No. switch (LC02-0N only)




| Rotary switch | Description | Settings | |
|---|---|---|---|
| | | For RS-232 communication | For RS-422 communication |
| 1) | Station No. (10's digit) | 0 | 0 |
| 2) | Station No. (1's digit) | 1 | 2 |

## 7.2.11 Connecting to STARDOM

Make the communication settings as shown below.For details of the communication settings, refer to the following manual.

Peripheral Software Manual for YOKOGAWA PLC

**POINT**

Connection between STARDOM and the PC for communication settings

For the communication settings of STARDOM, STARDOM and the PC for communication settings must be connected to Ethernet using the Resource Configurator (peripheral software).

### ■ COM port setting

Make the settings on the FCX Maintenance Page for STARDOM.

1. Select [Reboot (Maintenance Mode)] on the Reboot screen of the FCX Maintenance Page to set the maintenance mode.
2. Set the COM1 port driver to be used.Execute [JEROS Basic Setting File] from the [Edit System Setting File] screen on the FCX Maintenance Page.
   Confirm that the line of [Com1SioDriver] is as follows.
   Com1SioDriver=DUONUS_SIO
3. Set the COM1 port to be used.Execute [COM1 Port Setting File] from the [Edit System Setting Files] screen on the FCX Maintenance Page.Make the settings as follows according to the communication specifications on the setting screen.
   Leave the settings as default if not listed on the communication setting items.
   (Communication setting items) ( ) in the table shows the names on the FCX Maintenance Page.

| Item | Set value |
|---|---|
| Transmission speed (Baudrate)*1 | 4800bps, 9600bps, 19200bps, 38400bps, 57600bps, 115200bps |
| Data length (DataBitLength)*1 | 8bits, 7bits |
| Stop bit (StopBitLength)*1 | 1bit, 2bits |
| Parity bit (Parity)*1 | none/odd/even |

| | |
|---|---|
| Baudrate | = *1 |
| DataBitLength | = *1 |
| StopBitLength | = *1 |
| Parity | = *1 |
| FifoMode | = YES |
| InitialDTRState | = ON |
| SendFlowControlMode | = CTS |
| ReceiveFlowControlMode | = DTR |

*1 Adjust the settings with GOT communication settings.

7.2.5 ■ Communication detail settings

4. Select "Reboot (Online Mode)" on the "Reboot" screen of the FCX Maintenance Page to set the online mode.

## ■ Defining Logic POU

Define Logic POU using Logic Designer (peripheral software), and download the project to STARDOM.

1. Start Logic Designer and create a new project using a template.
   Use [STARDOM Serial Communication] template.

2. Insert FA-M3 Emulator Firmware Library to the new project.

   (1) Right-click [Library] under the project tree in Logic Designer.

   (2) Right-click [Insert] and select [Firmware Library].

   (3) Double-click the [SD_FCXPLCR_LIB] folder and double-click [SD_FCXPLCR_LIB.fwl] to select it.

   (4) The library path inserted in the procedures above is as follows.
   {Install Folder}\LogicDesigner\Mwt\Plc\Fw_lib\SD_FCXPLCR_LIB\SD_FCXPLCR_LIB.fwl

3. Insert FA-M3 Emulator User Library to the new project.

   (1) Right-click [Library] under the project tree in Logic Designer.

   (2) Right-click [Insert] and select [User Library].

   (3) Double-click [SD_CFAM3R_PF.mwt] to select it.

   (4) The library path inserted in the procedures above is as follows.
   {Install Folder}\LogicDesigner\Libraries\SD_CFAM3R_PF.mwt

4. Copy a sample project POU to the new project.

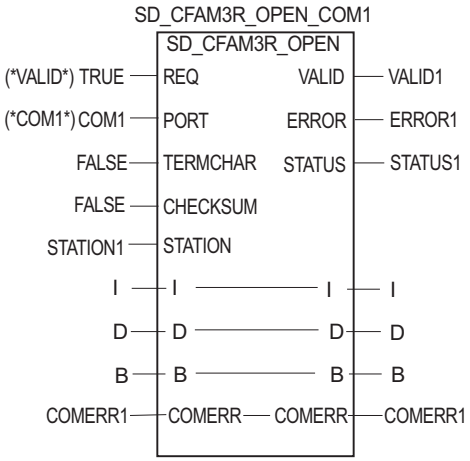
   (1) Open C{Install Folder}\LogicDesigner\Projects\EXAMPLE_J.mwt.

   (2) Right-click [FAM3_Emulator] in the Logic POU under the project tree in the Example_J project, and select [Copy].

   (3) Right-click the [Logic POU] under the project tree in the created new project, and select [Paste].

   (4) Double-click the [FAM3_Emulator*] file in the [FAM3_Emulator*] folder.

   (5) For the following terminals, set as shown below.
   REQ terminal : TRUE
   TERMCHAR terminal : FALSE
   PORT terminal : COM1
   STATION terminal : STATION1




(Definition example of Logic POU)

5. Defining the instance
   Instantiate Logic POU. Define an already defined instance to Task0.

   (1) Right-click the [Physical hardware] [Configuration:IPC_33/FCX01:FCX/Tasks/Task0:CYCLIC] and select [Insert] - [Program instance].

   (2) Define the program instance name and select FAM3_Emulator for the program type.

6. Defining Target Setting
Define the IP address or host name of STARDOM for which the communication settings are made.
Double-click [Physical hardware] [Configuration:IPC_33/FCX01:FCX/Target Setting] and input the IP address or the host name.

7. Downloading the project

(1) Execute [Build] - [Make].
(Same as when pressing the function key F9).

(2) Download after confirming that the compile error does not occur. Select [Download] in the project control dialog displayed when [Online] - [Project control] is selected.

(3) When the download is completed, select [Cold] and start STARDOM.

## 7.2.12 Precautions

### ■ Device range

When performing monitoring with the GOT connected to a YOKOGAWA PLC and setting devices for objects, use devices within the device range of the YOKOGAWA PLC.
When a device outside the range is set on an object, an indefinite value is displayed on the object.
(No error is displayed in the system alarm.)
For details on the device range of YOKOGAWA PLCs, refer to the following manual:

☞ 7.4 Device Range that Can Be Set

### ■ Connecting to STARDOM

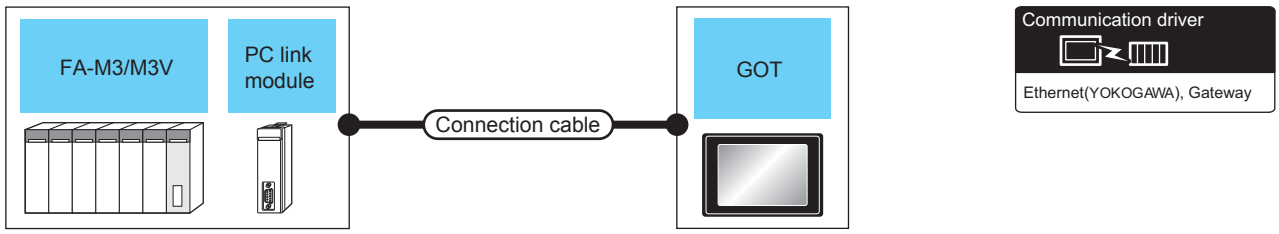
(1) Redundant system
When STARDOM is configured with a redundant system, the connection is not supported.

(2) System alarm
The PLC error does not appear in the system alarm.

(3) GOT clock control
Since the STARDOM does not have a clock function, the settings of [time adjusting] or [time broad cast] by GOT clock control will be disabled.

# 7.3 Ethernet Connection

## 7.3.1 System configuration for connecting to FA-M3/M3V




| PLC | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Model name | Ethernet interface module*1 | Cable model*2<br>Connection diagram number | Maximum segment length*3 | Option device | Model | |
| F3SP05<br>F3SP08<br>F3FP36<br>F3SP21<br>F3SP25<br>F3SP35<br>F3SP28<br>F3SP38<br>F3SP53<br>F3SP58<br>F3SP59<br>F3SP76-7S | F3LE01-5T<br>F3LE11-0T<br>F3LE12-0T | • 10BASE-T<br>Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) : Category 3, 4, and 5<br>• 100BASE-TX<br>Shielded twisted pair cable (STP) : Category 5 and 5e | 100m | - (Built into GOT) | GT27 GT25 GT23 | When PLC:GOT is N:1<br>The following shows the number of PLCs for 1 GOT<br>TCP: 128 or less<br>UDP: 128 or less<br><br>When PLC:GOT is 1:N<br>The following shows the number of GOTs for 1 PLC<br>TCP: 8 or less<br>UDP: 128 or less<br>(recommended to 16 or less) |
| F3SP71-4S | F3LE11-0T | | | | | |
| F3SP66<br>F3SP67<br>F3SP71-4N<br>F3SP76-7S<br>F3SP71-4S | - | | | | | |

*1 Product manufactured by YOKOGAWA Electric Corporation. For details of the product, contact Yokogawa Electric Corporation.

*2 The destination connected with the twisted pair cable varies with the configuration of the applicable Ethernet network system.
Connect to the Ethernet module, hub, transceiver or other system equipment corresponding to the applicable Ethernet network system.
Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standards.

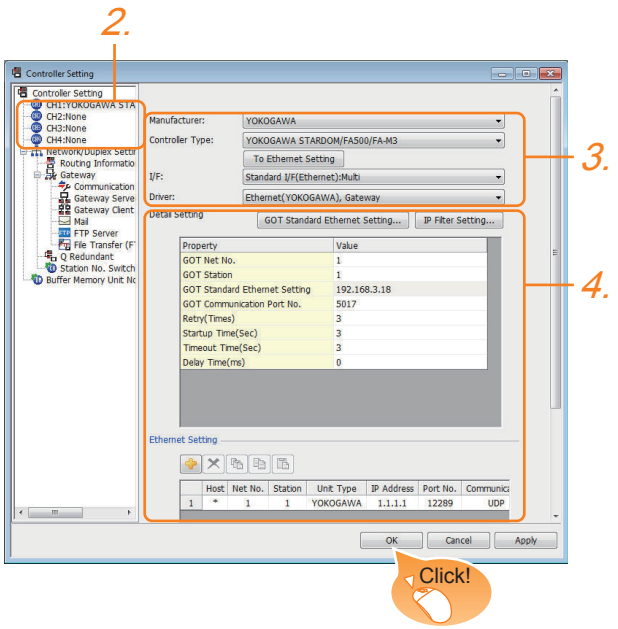
*3 A length between a hub and a node.
The maximum distance differs depending on the Ethernet device to be used.
The following shows the number of the connectable nodes when a repeater hub is used.
- 10BASE-T: Max. 4 nodes for a cascade connection (500m)
- 100BASE-TX: Max. 2 nodes for a cascade connection (205m)

When switching hubs are used, the cascade connection between the switching hubs has no logical limit for the number of cascades.
For the limit, contact the switching hub manufacturer.

## 7.3.2 GOT Side Settings

### ■ Setting communication interface (Communication settings)

Set the channel of the connected equipment.




1. Select [Common] → [Controller Setting] from the menu.
2. The Controller Setting window is displayed. Select the channel to be used from the list menu.
3. Set the following items.
   - Manufacturer: YOKOGAWA
   - Controller Type: STARDOM/FA500/FA-M3
   - I/F: Interface to be used
   - Driver: Ethernet (YOKOGAWA), Gateway
4. The detailed setting is displayed after Manufacturer, Controller Type, I/F, and Driver are set.
   Make the settings according to the usage environment.
   ☞ 7.3.2 ■ Communication detail settings

Click the [OK] button when settings are completed.

**POINT**

The settings of connecting equipment can be confirmed in [I/F Communication Setting].
For details, refer to the following.
☞ 1.1.2 I/F communication setting

### ■ Communication detail settings

Make the settings according to the usage environment.

| Property | Value |
|---|---|
| GOT Net No. | 1 |
| GOT Station | 1 |
| GOT Ethernet Setting | 192.168.3.18 |
| GOT Communication Port No. | 5017 |
| Retry(Times) | 3 |
| Startup Time(Sec) | 3 |
| Timeout Time(Sec) | 3 |
| Delay Time(ms) | 0 |

| Item | Description | Range |
|---|---|---|
| GOT Net No. | Set the network No. of the GOT. (Default: 1) | 1 to 239 |
| GOT Station*1 | Set the station No. of the GOT. (Default: 1) | 1 to 64 |
| GOT Ethernet Setting | Set the GOT IP address, subnet mask, default gateway, peripheral S/W communication port No., transparent port No. | ☞ GOT Ethernet setting |
| GOT Communication Port No. | Set the GOT port No. for the connection with the Ethernet module. (Default: 5017) | 1024 to 5010, 5014 to 65534 (Except for 5011, 5012, 5013 and 49153) |
| Retry | Set the number of retries to be performed when a communication timeout occurs. When receiving no response after retries, the communication times out. (Default: 3times) | 0 to 5times |
| Startup Time | Specify the time period from the GOT startup until GOT starts the communication with the PLC CPU. (Default: 3sec) | 3 to 255sec |
| Timeout Time | Set the time period for a communication to time out. (Default: 3sec) | 1 to 90sec |
| Delay Time | Set the delay time for reducing the load of the network/destination PLC. (Default: 0ms) | 0 to 10000 (× 10 ms) |

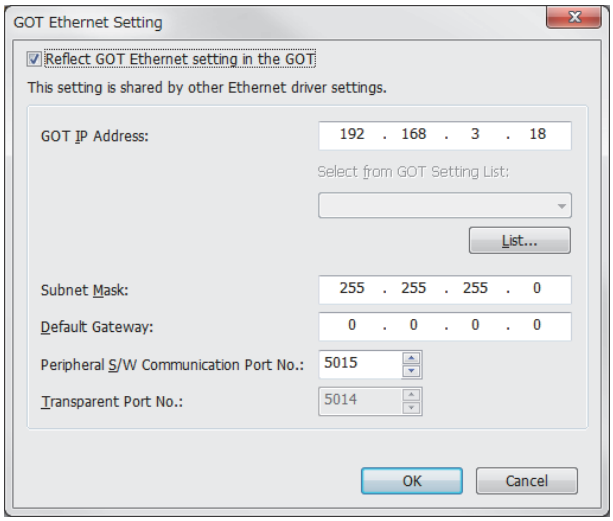
*1 Each of [GOT Station] set in the communication detail setting and [Station] set in the Ethernet setting must be set to different station numbers.
☞ ■ Ethernet setting

**POINT**

(1) Communication interface setting by the Utility
The communication interface setting can be changed on the Utility's [Communication setting] after writing [Communication Settings] of project data.
For details on the Utility, refer to the following manual.
☞ GOT2000 Series User's Manual (Utility)

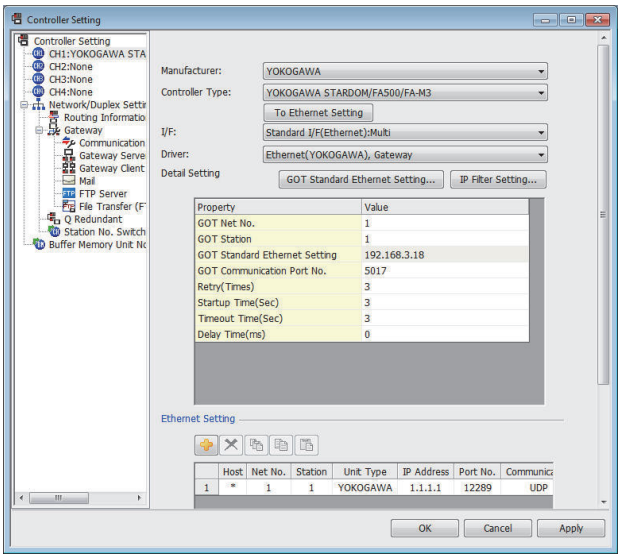
(2) Precedence in communication settings
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

## ■ GOT Ethernet setting




| Item | Description | Range |
|---|---|---|
| GOT IP Address | Set the IP address of the GOT. (Default: 192.168.0.18) | 0.0.0.0 to 255.255.255.255 |
| Subnet Mask | Set the subnet mask for the sub network.(Only for connection via router) If the sub network is not used, the default value is set. (Default: 255.255.255.0) | 0.0.0.0 to 255.255.255.255 |
| Default Gateway | Set the router address of the default gateway where the GOT is connected.(Only for connection via router) (Default: 0.0.0.0) | 0.0.0.0 to 255.255.255.255 |
| Peripheral S/W Communication Port No. | Set the GOT port No. for the S/W communication. (Default: 5015) | 1024 to 5010, 5014 to 65534 (Except for 5011, 5012, 5013 and 49153) |
| Transparent Port No. | Set the GOT port No. for the transparent function. (Default: 5014) | 1024 to 5010, 5014 to 65534 (Except for 5011, 5012, 5013 and 49153) |

## ■ Ethernet setting




| Item | Description | Set value |
|---|---|---|
| Host | The host is displayed.(The host is indicated with an asterisk (*).) | — |
| Net No. | Set the network No. of the connected Ethernet module. (Default: blank) | 1 to 239 |
| Station*3 | Set the station No. of the connected Ethernet module. (Default: blank) | 1 to 64 |
| Type | YOKOGAWA (fixed) | YOKOGAWA (fixed) |
| IP address*1 | Set the IP address of the connected Ethernet module. (Default: blank) | PLC side IP address |
| Port No.*2 | Set the port No. of the connected Ethernet module. (Default: 12289) | 12289, 12291 |
| Communication format*1 | Select a communication protocol. (Default: UDP) | UDP, TCP |

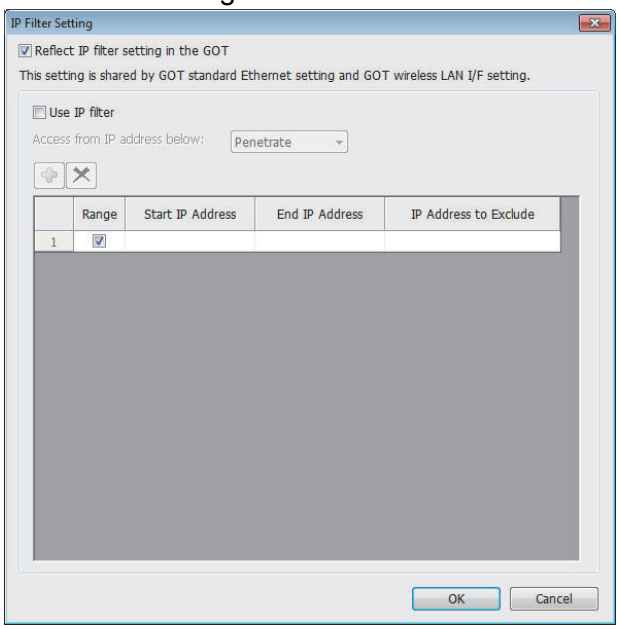
*1 Set the same IP address and communication format as those of the PLC side.

*2 Set the port No. of the host link service used on the PLC side.

*3 Each of [GOT Station] set in the communication detail setting and [Station] set in the Ethernet setting must be set to different station numbers.

■ Communication detail settings

## ■ IP Filter Setting




To improve security, the GOT 2000 series supports the IP Filter Setting.
For details on the IP Filter Setting, refer to the following manual.

☞ GT Designer3 (GOT2000) Help

# 7.3.3 PLC side setting

**POINT**

YOKOGAWA PLC
For details of YOKOGAWA PLCs, refer to the following manuals.

☞ YOKOGAWA PLC user's Manual

| Model name | | Refer to |
|---|---|---|
| Ethernet interface module | F3LE01-5T | 7.3.4 |
| | F3LE11-0T | |
| | F3LE12-0T | 7.3.5 |
| Built-in Ethernet interface | F3SP66 | 7.3.6 |
| | F3SP67 | |
| | F3SP71-4N | |

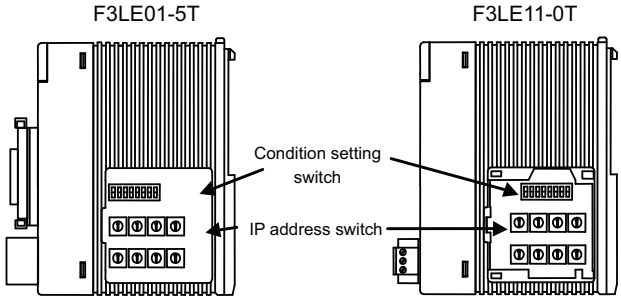
# 7.3.4 Connecting to Ethernet Interface Module (F3LE01-5T, F3LE11-0T)

## ■ Switch settings of Ethernet Interface Module

Set the switches accordingly.

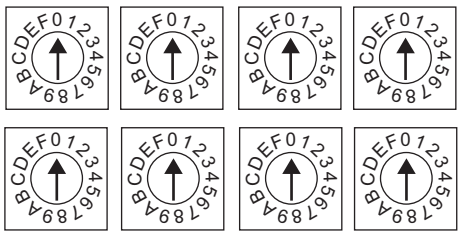
**POINT**

Switch setting
Set the switches before mounting the Ethernet Interface Module on the base unit.



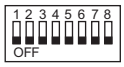

Right side view without the cover

(1) IP address switch
Set the IP address with eight Hex rotary switches on the side of the base unit



(2) Condition setting switch

Set the data format, write protection, line processing at TCP timeout error or operation mode with the DIP switch on the side of the base unit.




| Switch No. | Description | Set value |
|---|---|---|
| 1 | Data code | OFF (ASCII) |
| 2 | Write protect | OFF (not protect) |
| 3 | Reserved | ON (not available), OFF (always) |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | Line processing on TCP timeout*1 | OFF (close the line) |
| 8 | Operation mode | OFF (normal operation) |

*1 Applicable to only F3LE01-5T.

## 7.3.5 Connecting to Ethernet Interface Module (F3LE12-0T)

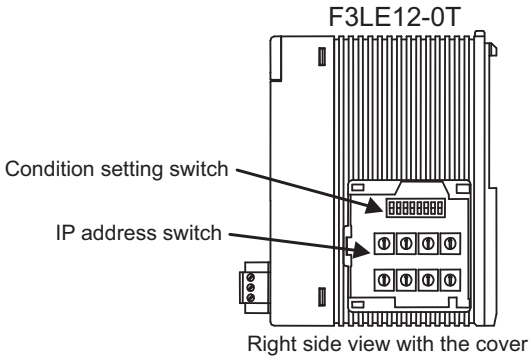
### ■ Switch settings of Ethernet Interface Module

Set the switches accordingly.

**POINT**

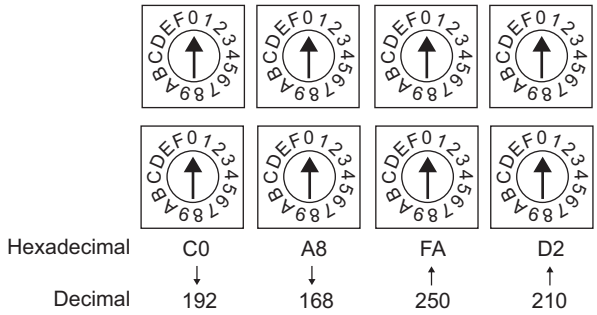
Switch setting

Set the switches before mounting the Ethernet Interface Module on the base unit.



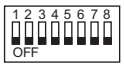

(1) IP address switch

Set the IP address with eight Hex rotary switches on the side of the base unit.




(2) Condition setting switch

Set the data format, write protection, or operation mode with the DIP switch on the side of the base unit.




| Switch No. | Description | Set value |
|---|---|---|
| 1 | Data code | OFF (ASCII) |
| 2 | Write protect | OFF (not protect) |
| 3 | Reserved | ON (not available), OFF (always) |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | Operation mode | OFF (normal operation) |

## 7.3.6 Connecting to F3SP66, F3SP67, F3SP71-4N (built-in Ethernet interface)

### ■ Project setting/configuration setting

Set the setting with software for programming apparatus.

| Item | Set value | Description |
|---|---|---|
| IP address*1 | 0.0.0.0 to 255.255.255.255 | Set the IP address of the connected Ethernet module. |
| Host link service A protocol*2 Port No.: 12289 | 0=TCP/IP*1 1=UDP/IP*1 | Select the protocol to be used in the port A of the host link service via Ethernet. |
| Host link service A protocol command data type*2 Port No.: 12289 | 0=ASCII format | Select the command data type to be used in the port A of the host link service via Ethernet. |
| Host link service B protocol*2 Port No.: 12291 | 0=TCP/IP*1 1=UDP/IP*1 | Select the protocol to be used in the port B of the host link service via Ethernet. |
| Host link service B protocol command data type*2 Port No.: 12291 | 0=ASCII format | Select the command data type to be used in the port B of the host link service via Ethernet. |
| Write protection*3 | 0 = Not protected 1 = Protected | Disables the write command to this module with the host link service via Ethernet. |

*1 Adjust the settings with GOT settings.
7.3.2 ■ Ethernet setting

*2 For the port No. of the GOT, set the port No. of the host link service to be used.
7.3.2 ■ Ethernet setting

*3 Set this as necessary.

## 7.3.7 Precautions

### ■ Device range

When performing monitoring with the GOT connected to a YOKOGAWA PLC and setting devices for objects, use devices within the device range of the YOKOGAWA PLC.
When a device outside the range is set on an object, an indefinite value is displayed on the object.
(No error is displayed in the system alarm.)
For details on the device range of YOKOGAWA PLCs, refer to the following manual:
7.4 Device Range that Can Be Set

### ■ When setting IP address

Do not use "0" and "255" at the end of an IP address. (Numbers of *.*.*.0 and *.*.*.255 are used by the system.)
The GOT may not monitor the controller correctly with the above numbers.
Consult with the administrator of the network before setting an IP address to the GOT and controller.

### ■ When connecting to multiple GOTs

(1) Setting Station
When connecting two or more GOTs in the Ethernet network, set each [Station] to the GOT.
7.3.2 ■ Ethernet setting

(2) Setting IP address
Do not use the IP address "192.168.0.18" when using multiple GOTs.
A communication error may occur on the GOT with the IP address.

### ■ When connecting to the multiple network equipment (including GOT) in a segment

By increasing the network load, the transmission speed between the GOT and PLC may be reduced.
The following actions may improve the communication performance.

- Using a switching hub
- More high speed by 100BASE-TX (100Mbps)
- Reduction of the monitoring points on GOT

# 7.4 Device Range that Can Be Set

The device ranges of controller that can be used for GOT are as follows.

Note that the device ranges in the following tables are the maximum values that can be set in GT Designer3.

The device specifications of controllers may differ depending on the models, even though belonging to the same series.

Please make the setting according to the specifications of the controller actually used.

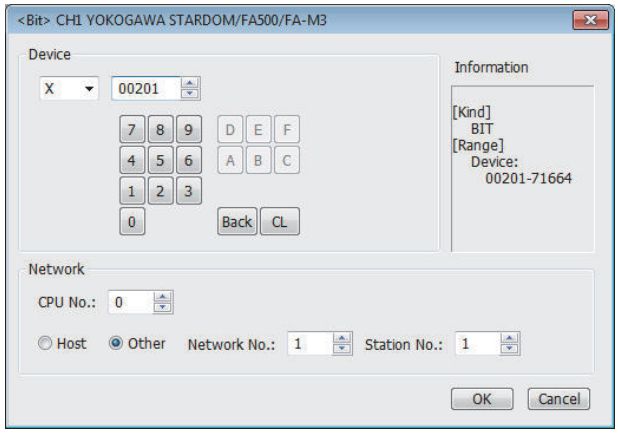
When a non-existent device or a device number outside the range is set, other objects with correct device settings may not be monitored.

**POINT**

(1) When using YOKOGAWA PLC FA-M3
When YOKOGAWA PLC FA-M3 is used, the device range that can be used differs depending on the PLC model selected by the GT Designer3. Since [YOKOGAWA STARDOM/FA-M3] has larger device points that can be set than [YOKOGAWA FA500/FA-M3], select [YOKOGAWA STARDOM/FA-M3] if a large device points should be set.

(2) Devices to be set for an object
When a device outside the range is set for an object, an indefinite value is displayed on the object.(No error is displayed in the system alarm.)
A device to be set for an object must be in the device range of YOKOGAWA PLC.
For details on the device range of YOKOGAWA PLCs, refer to the following manual:
☞ YOKOGAWA PLC user's Manual

## ■ Setting item




| Item | | Description |
|---|---|---|
| Device | | Set the device name, device number, and bit number.<br>The bit number can be set only when specifying the bit of word device. |
| | File No. | Set the file No. |
| Information | | Displays the device type and setting range which are selected in [Device]. |
| Network | | Set the station number of the controller to be monitored. |
| | CPU No. | Set the CPU No. of the controller.<br>☞ (1)Setting of the CPU No. |
| | Host | Select this item for monitoring the host controller. |
| | Other | Select this for monitoring other controllers.<br>After selecting, set the station number of the controller to be monitored.<br>NW No.: Set the network No.<br>Station No.: Set the station No. |

(1) Setting of the CPU No.

- When monitoring a single CPU system
  Set to [0].
- When monitoring a multiple CPU system
  Set the CPU No. [0] to [4]
  When [CPU No.] is set to "0", the monitoring target is CPU No.1.

## 7.4.1 YOKOGAWA FA500/FA-M3 Series

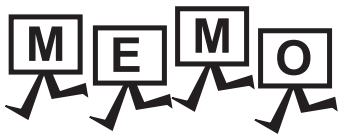
| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | Input relay (X)*1 | X00201 to X71664 | Decimal |
| | Output relay (Y) | Y00201 to Y71664 | |
| | Internal relay (I) | I1 to I65536 | |
| | Link relay (L) | L1 to L71024 | |
| | Common relay (E) | E1 to E4096 | |
| | Special relay (M)*3 | M1 to M9984 | |
| | Timer (TU)*2 | TU1 to TU3072 | |
| | Counter (CU)*2 | CU1 to CU3072 | |
| | Word device bit | Specified bit of the following word devices (Except Timer (TP, TS), Counter (CP, CS)) | |
| Word device | Timer (TP) | TP1 to TP3072 | Decimal |
| | Timer (TS)*1 | TS1 to TS3072 | |
| | Counter (CP) | CP1 to CP3072 | |
| | Counter (CS)*1 | CS1 to CS3072 | |
| | File register (B) | B1 to B262144 | |
| | Data register (D) | D1 to D8192 | |
| | Common register (R) | R1 to R4096 | |
| | Index register (V) | V1 to V256 | |
| | Link register (W) | W1 to W71024 | |
| | Special register (Z)*3 | Z1 to Z512 | |
| | Bit device word | Converting bit devices into word (Except Timer (TU), Counter (CU)) | |

*1 Writing is not possible.
*2 Writing to continuous devices is not possible.
*3 The GOT cannot read or write data from/to consecutive devices.

## 7.4.2 YOKOGAWA STARDOM/FA-M3 Series

| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | Input relay (X)*1 | X00201 to X71664 | Decimal |
| | Output relay (Y) | Y00201 to Y71664 | |
| | Internal relay (I)*4 | I1 to I65535 | |
| | Link relay (L) | L00001 to L08192<br>L10001 to L18192<br>L20001 to L28192<br>L30001 to L38192<br>L40001 to L48192<br>L50001 to L58192<br>L60001 to L68192<br>L70001 to L78192 | |
| | Common relay (E) | E1 to E4096 | |
| | Special relay (M)*3 | M1 to M9984 | |
| | Timer (TU)*2 | TU1 to TU3072 | |
| | Counter (CU)*2 | CU1 to CU3072 | |
| | The bit specification of the word device (except Timer, Counter) | Setting range of each word device | |
| Word device | Timer (TP) | TP1 to TP3072 | Decimal |
| | Timer (TS)*1 | TS1 to TS3072 | |
| | Counter (CP) | CP1 to CP3072 | |
| | Counter (CS)*1 | CS1 to CS3072 | |
| | Filer register (B)*5 | B1 to B262144 | |
| | Data register (D) | D1 to D65535 | |
| | Common register (R) | R1 to R4096 | |
| | Index register | V1 to V256 | |
| | Link register (W) | W00001 to W08192<br>W10001 to W18192<br>W20001 to W28192<br>W30001 to W38192<br>W40001 to W48192<br>W50001 to W58192<br>W60001 to W68192<br>W70001 to W78192 | |
| | Special register (Z)*3 | Z1 to Z1024 | |
| | The word specification of the bit device (except Timer, Counter) | Setting range of each bit devices | |

*1 Writing is not possible.
*2 Writing to continuous devices is not possible.
*3 The GOT cannot read or write data from/to consecutive devices.
*4 With STARDOM, FA-M3 (F3SP59 only), if communications that include the maximum device number (32767 or 65535) occurs, system alarm "322 Dedicated device is out of range. Confirm device range." may be detected.
If such system alarm is detected, do not use the last 15 bits.
*5 With STARDOM, do not use B32768 or later. Otherwise, normal monitoring is not performed.


MEMO

# 8

# CONNECTION TO YOKOGAWA TEMPERATURE CONTROLLER


8.1 Connectable Model List . . . . . 8 - 2
8.2 System Configuration . . . . . 8 - 3
8.3 Connection Diagram . . . . . 8 - 12
8.4 GOT Side Settings . . . . . 8 - 27
8.5 Temperature Controller Side Setting . . . . . 8 - 29
8.6 Device Range that Can Be Set . . . . . 8 - 33
8.7 Precautions . . . . . 8 - 34

# 8. CONNECTION TO YOKOGAWA TEMPERATURE CONTROLLER

## 8.1 Connectable Model List

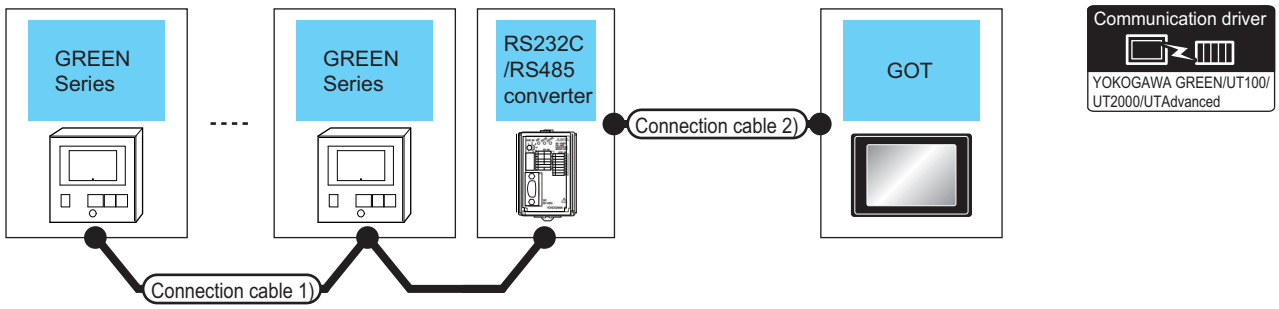
The following table shows the connectable models.

| Series | Model name | Clock | Communication Type | Connectable model | Refer to |
|---|---|---|---|---|---|
| GREEN | UT320 | × | RS-232<br>RS-485 | GT27 GT25 GT23 | 8.2.1 |
| | UT321 | | | | |
| | UT350 | | | | |
| | UT351 | | | | |
| | UT420 | | | | |
| | UT450 | | | | |
| | UT520 | | | | |
| | UT550 | | | | |
| | UT551 | | | | |
| | UT750 | | | | |
| | UP350 | | | | |
| | UP351 | | | | |
| | UP550 | | | | |
| | UP750 | | | | |
| | UM330 | | | | |
| | UM331 | | | | |
| | UM350 | | | | |
| | UM351 | | | | |
| | US1000 | | | | |
| UT100 | UT130 | × | RS-232<br>RS-485 | GT27 GT25 GT23 | 8.2.2 |
| | UT150 | | | | |
| | UT152 | | | | |
| | UT155 | | | | |
| | UP150 | | | | |
| UT2000 | UT2400 | × | RS-232<br>RS-485 | GT27 GT25 GT23 | 8.2.3 |
| | UT2800 | | | | |
| UTAdvanced | UT32A | × | RS-232<br>RS-485 | GT27 GT25 GT23 | 8.2.4 |
| | UT35A | | | | |
| | UT52A | | | | |
| | UT55A | | | | |
| | UT75A | | | | |
| | UP35A | | | | |
| | UP55A | | | | |
| | UM33A | | | | |

# 8.2 System Configuration

## 8.2.1 Connecting to GREEN Series

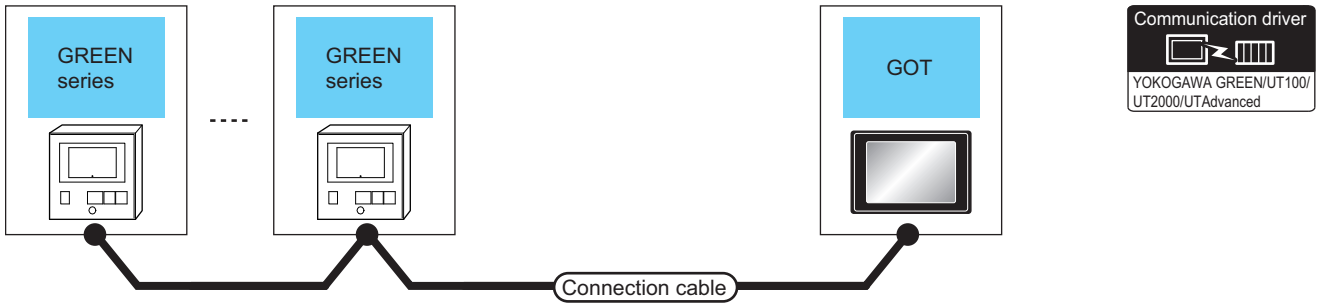
■ When using the RS232C/RS485 converter




| Temperature controller | Connection cable 1) | | RS232C/RS485 converter*1 | | Connection cable 2) | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|---|
| Model name | Cable model Connection diagram number | Max. distance | Model name | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| UT320 UT321 UT350 UT351 UT420 UT450 UT520 UT550 UT551 UT750*2 UP350 UP351 UP550 UP750*2 UM330 UM331 UM350 UM351 US1000 | User preparing RS-485 connection diagram 1) (4-wire type) | 1200m | ML2-□ | RS-232 | GT09-C30R20304-9S (3m) or User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | | | | | | GT15-RS2-9P | GT27 GT25 | |
| | User preparing RS-485 connection diagram 5) (2-wire type) | 1200m | ML2-□ | RS-232 | GT09-C30R20304-9S (3m) or User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | | | GT15-RS2-9P | GT27 GT25 | |
| UP750*3 UT750*3 | User preparing RS-485 connection diagram 9) (2-wire type) | 1200m | ML2-□ | RS-232 | GT09-C30R20304-9S (3m) or User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by YOKOGAWA Electric Corporation. For details of the product, contact Yokogawa Electric Corporation.
*2 Connect the connection cable 1) to the standard RS-485 communication interface.
*3 Connect the connection cable 1) to the high performance RS-485 communication interface.

■ When connecting directly

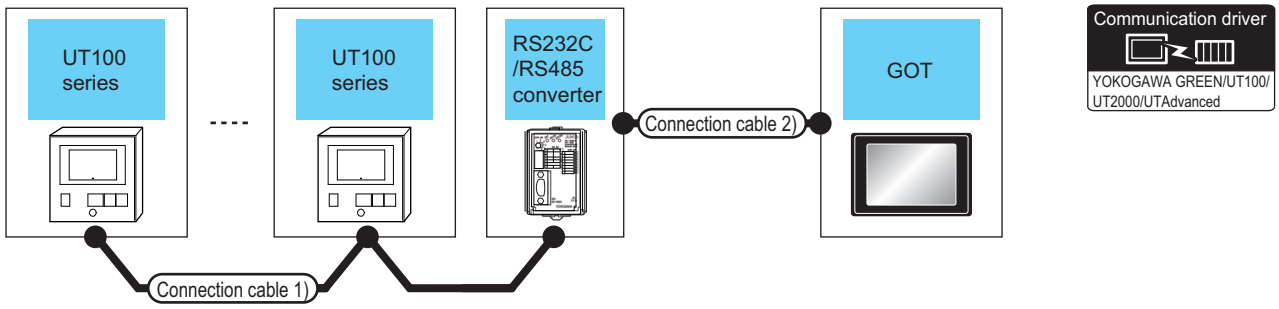



| Temperature controller | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Model name | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| UT320<br>UT321<br>UT350<br>UT351<br>UT420<br>UT450<br>UT520<br>UT550<br>UT551<br>UT750*1<br>UP350<br>UP351<br>UP550<br>UP750*1<br>UM330<br>UM331<br>UM350<br>UM351<br>US100 | RS-485 | GT09-C30R40303-6T (3m)<br>GT09-C100R40303-6T (10m)<br>GT09-C200R40303-6T (20m)<br>GT09-C300R40303-6T (30m)<br>or<br>User preparing RS-485 connection diagram 3)<br>(4-wire type) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | Up to the following number of temperature controllers for 1 GOT<br>GT16, GT15: 31<br>GT11: 10 |
| | | | | GT15-RS4-9S | GT27 GT25 | |
| | | User preparing RS-485 connection diagram 2)<br>(4-wire type) | 1200m | FA-LTBGT2R4CBL05 (0.5m)*3<br>FA-LTBGT2R4CBL10 (1m)*3<br>FA-LTBGT2R4CBL20 (2m)*3 | GT27 GT25 GT23 | |
| | | User preparing RS-485 connection diagram 6)<br>(2-wire type) | | | | |
| | | User preparing RS-485 connection diagram 4)<br>(4-wire type) | 1200m | GT15-RS4-TE | GT27 GT25 | |
| | | User preparing RS-485 connection diagram 8)<br>(2-wire type) | | | | |
| UP750*2<br>UT750*2 | RS-485 | User preparing RS-485 connection diagram 7)<br>(2-wire type) | 1200m | FA-LTBGT2R4CBL05 (0.5m)*3<br>FA-LTBGT2R4CBL10 (1m)*3<br>FA-LTBGT2R4CBL20 (2m)*3 | GT27 GT25 GT23 | |
| | | User preparing RS-485 connection diagram 10)<br>(2-wire type) | 1200m | GT15-RS4-TE | GT27 GT25 | |

*1 Connect the connection cable to the standard RS-485 communication interface.
*2 Connect the connection cable to the high performance RS-485 communication interface.
*3 Product manufactured by MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.For details of the product, contact MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.

## 8.2.2 Connecting to UT100 Series

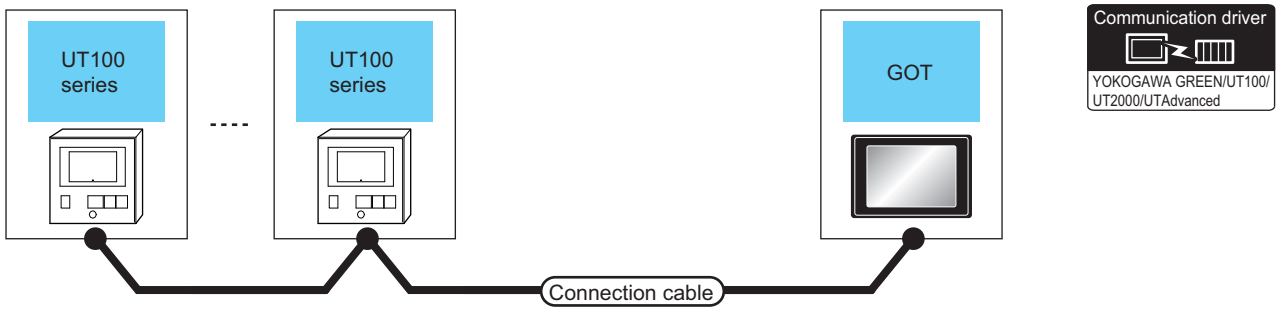
### ■ When using the RS232C/RS485 converter




| Temperature controller | Connection cable 1) | | RS232C/RS485 converter*1 | | Connection cable 2) | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|---|
| Series | Cable model Connection diagram number | Max. distance | Model name | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| UT100 | User preparing RS-485 connection diagram 9) | 1200m | ML2-□ | RS-232 | User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 31 temperature controllers for 1 GOT |
| | | | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by YOKOGAWA Electric Corporation.For details of the product, contact Yokogawa Electric Corporation.

### ■ When connecting directly

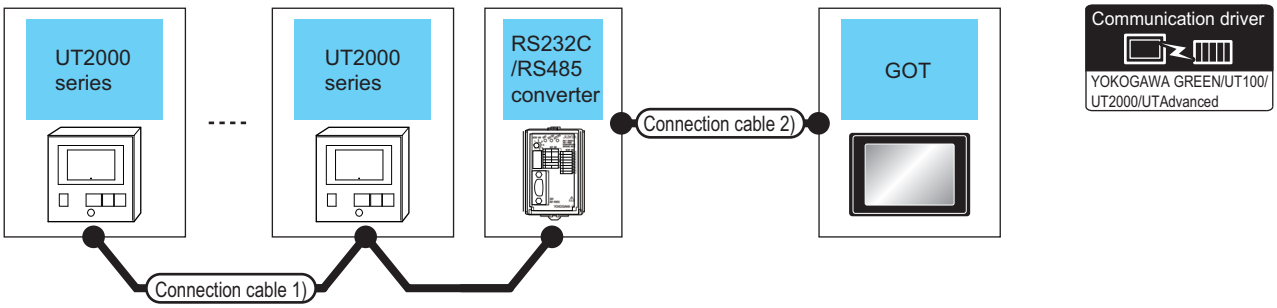



| Temperature controller | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Series | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| UT100 | RS-485 | User preparing RS-485 connection diagram 7) (2-wire type) | 1200m | FA-LTBGT2R4CBL05(0.5m)*1 FA-LTBGT2R4CBL10(1m)*1 FA-LTBGT2R4CBL20(2m)*1 | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | User preparing RS-485 connection diagram 10) (2-wire type) | 1200m | GT15-RS4-TE | GT27 GT25 | |

*1 Product manufactured by MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.For details of the product, contact MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.

## 8.2.3 Connecting to UT2000 Series

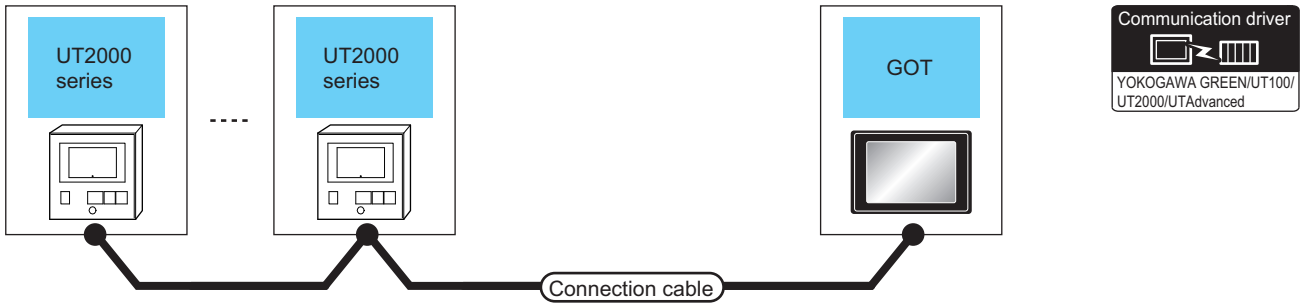
■ When using the RS232C/RS485 converter




| Temperature controller | Connection cable 1) | | RS232C/RS485 converter*1 | | Connection cable 2) | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|---|
| Series | Cable model Connection diagram number | Max. distance | Model name | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| UT2000 | User preparing RS-485 connection diagram 12) | 1200m | ML2-□ | RS-232 | GT09-C30R20304-9S (3m) or User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | Up to 16 temperature controllers for 1 GOT |
| | | | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by YOKOGAWA Electric Corporation.For details of the product, contact Yokogawa Electric Corporation.

■ When connecting directly

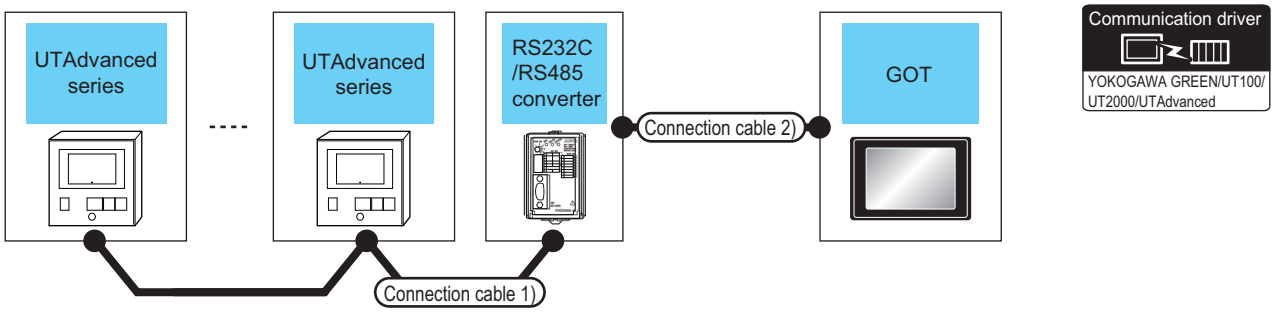



| Temperature controller | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Series | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| UT2000 | RS-485 | GT09-C30R40304-6T (3m)<br>GT09-C100R40304-6T (10m)<br>GT09-C200R40304-6T (20m)<br>GT09-C300R40304-6T (30m)<br>or<br>User preparing RS-485 connection diagram 13)<br>(4-wire type) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | Up to 16 temperature controllers for 1 GOT |
| | | | | GT15-RS4-9S | GT27 GT25 | Up to 16 temperature controllers for 1 GOT |
| | | User preparing RS-485 connection diagram 11)<br>(4-wire type) | 1200m | FA-LTBGT2R4CBL05(0.5m)*1<br>FA-LTBGT2R4CBL10(1m)*1<br>FA-LTBGT2R4CBL20(2m)*1 | GT27 GT25 GT23 | Up to 16 temperature controllers for 1 GOT |
| | | User preparing RS-485 connection diagram 14)<br>(4-wire type) | 1200m | GT15-RS4-TE | GT27 GT25 | |

*1 Product manufactured by MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.For details of the product, contact MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.

## 8.2.4 Connecting to UTAdvanced Series

■ When using the RS232C/RS485 converter

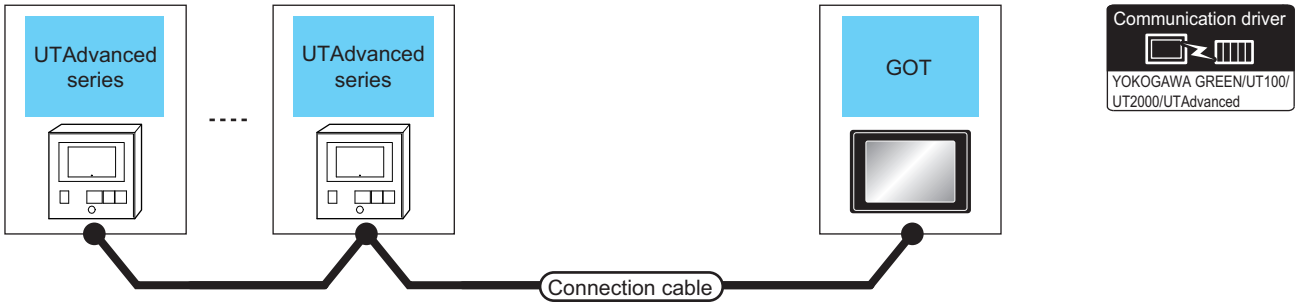



| Temperature controller | Connection cable 1) | | RS232C/RS485 converter*1 | | Connection cable 2) | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|---|
| Series | Cable model Connection diagram number | Max. distance | Model name | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| UT32A<br>UT35A<br>UT55A*2<br>UT75A<br>UP35A<br>UP55A*3<br>UM33A*4 | User preparing RS-485 connection diagram 15) (4-wire type) | 1200m | ML2-□ | RS-232 | GT09-C30R20304-9S (3m)<br>or<br>User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | | | | | | GT15-RS2-9P | GT27 GT25 | |
| | User preparing RS-485 connection diagram 16) (2-wire type) | 1200m | ML2-□ | RS-232 | GT09-C30R20304-9S (3m)<br>or<br>User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | | | | | | GT15-RS2-9P | GT27 GT25 | |
| UT52A<br>UT55A*5<br>UP55A*6<br>UM33A*7 | User preparing RS-485 connection diagram 9) (2-wire type) | 1200m | ML2-□ | RS-232 | GT09-C30R20304-9S (3m)<br>or<br>User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by YOKOGAWA Electric Corporation. For details of the product, contact Yokogawa Electric Corporation.
For *2 to *7, only the products that meet the following conditions can be connected

| Annotation | Suffix code | | Optional suffix code | Remark |
|---|---|---|---|---|
| | Function | Open network | | |
| *2 | 1 or 2 | - | Without "/LP" | Product with two RS-485 communication ports (4-wire type/ 2-wire type) and without the power supply for 24VDC sensor |
| | - | 1 | - | Product with the open network port of RS-485 communication (4-wire type/2-wire type) |
| *3 | 2 | - | - | Product with two RS-485 communication ports (4-wire type/ 2-wire type) (Standard code model) |
| | Other than 3 | - | - | Product without the additional contact output points (DO) and with the open network port of RS-485 communication (4-wire type/2-wire type) (Standard code model) |
| | - | - | With "/CH3" | Product with RS-485 communication port (4-wire type/2-wire type) specified in the E3 terminal area option (Detailed code model) |
| | - | - | With "/C4" | Product with the RS-485 communication port (4-wire type/2-wire type) specified in the E4 terminal area option (Detailed code model) |
| *4 | 1 | - | Without "/LP" | Product with two RS-485 communication ports (4-wire type) and without the power supply of 24VDC sensor |
| *5 | 1 or 2 | - | With "/LP" | Product with two RS-485 communication ports (4-wire type/ 2-wire type) and with the power supply for 24VDC sensor |
| *6 | 2 | - | - | Product with two RS-485 communication ports (4-wire type/ 2-wire type) (Standard code model) |
| | - | - | With "/C4" | Product with the RS-485 communication port (4-wire type/2-wire type) specified in the E4 terminal area option (Detailed code model) |
| *7 | 1 | - | With "/LP" | Product with two RS-485 communication ports (4-wire type/ 2-wire type) and with the power supply for 24VDC sensor |

■ When connecting directly




| Temperature controller | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Series | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| UT32A<br>UT35A<br>UT55A*1<br>UT75A<br>UP35A<br>UP55A*2 | RS-485 | GT09-C30R40303-6T(3m)<br>GT09-C100R40303-6T(10m)<br>GT09-C200R40303-6T(20m)<br>GT09-C300R40303-6T(30m)<br>or<br>User preparing RS-485 connection diagram 3)<br>(4-wire type) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | | | GT15-RS4-9S | GT27 GT25 | |
| | | User preparing RS-485 connection diagram 17)<br>(4-wire type) | 1200m | FA-LTBGT2R4CBL05 (0.5m)*7<br>FA-LTBGT2R4CBL10 (1m)*7<br>FA-LTBGT2R4CBL20 (2m)*7 | GT27 GT25 GT23 | |
| | | User preparing RS-485 connection diagram 4)<br>(4-wire type) | 1200m | GT15-RS4-TE | GT27 GT25 | |
| | | User preparing RS-485 connection diagram 18)<br>(2-wire type) | 1200m | FA-LTBGT2R4CBL05 (0.5m)*7<br>FA-LTBGT2R4CBL10 (1m)*7<br>FA-LTBGT2R4CBL20 (2m)*7 | GT27 GT25 GT23 | |
| | | User preparing RS-485 connection diagram 8)<br>(2-wire type) | 1200m | GT15-RS4-TE | GT27 GT25 | |
| UM33A*7 | RS-485 | GT09-C30R40303-6T(3m)<br>GT09-C100R40303-6T(10m)<br>GT09-C200R40303-6T(20m)<br>GT09-C300R40303-6T(30m)<br>or<br>User preparing RS-485 connection diagram 3)<br>(4-wire type) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | | | GT15-RS4-9S | GT27 GT25 | |
| | | User preparing RS-485 connection diagram 4)<br>(4-wire type) | 1200m | GT15-RS4-TE | GT27 GT25 | |

| Temperature controller | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Series | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| UM33A*8 | RS-485 | User preparing RS-485 connection diagram 17) (4-wire type) | 1200m | FA-LTBGT2R4CBL05 (0.5m)*7<br>FA-LTBGT2R4CBL10 (1m)*7<br>FA-LTBGT2R4CBL20 (2m)*7 | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| UT52A<br>UT55A*3<br>UP55A*4<br>UM33A*5 | RS-485 | User preparing RS-485 connection diagram 19) (2-wire type) | 1200m | FA-LTBGT2R4CBL05 (0.5m)*7<br>FA-LTBGT2R4CBL10 (1m)*7<br>FA-LTBGT2R4CBL20 (2m)*7 | GT27 GT25 GT23 | |
| | | User preparing RS-485 connection diagram 10) (2-wire type) | 1200m | GT15-RS4-TE | GT27 GT25 | |

For *1 to *6, only the products that meet the following conditions can be connected.

| Annotation | Suffix code | | Optional suffix code | Remark |
|---|---|---|---|---|
| | Function | Open network | | |
| *1 | 1 or 2 | - | Without "/LP" | Product with two RS-485 communication ports (4-wire type/2-wire type) and without the power supply for 24VDC sensor |
| | - | 1 | - | Product with the open network port of RS-485 communication (4-wire type/2-wire type) |
| *2 | 2 | - | - | Product with two RS-485 communication ports (4-wire type/2-wire type) (Standard code model) |
| | Other than 3 | 1 | - | Product without the additional contact output points (DO) and with the open network port of RS-485 communication (4-wire type/2-wire type) (Standard code model) |
| | - | - | With "/CH3" | Product with RS-485 communication port (4-wire type/2-wire type) specified in the E3 terminal area option (Detailed code model) |
| | - | - | With "/C4" | Product with the RS-485 communication port (4-wire type/2-wire type) specified in the E4 terminal area option (Detailed code model) |
| *3 | 1 or 2 | - | With "/LP" | Product with two RS-485 communication ports (4-wire type/2-wire type) and with the power supply for 24VDC sensor |
| *4 | 2 | - | - | Product with two RS-485 communication ports (4-wire type/2-wire type) (Standard code model) |
| | - | - | With "/C4" | Product with the RS-485 communication port (4-wire type/2-wire type) specified in the E4 terminal area option (Detailed code model) |
| *5 | 1 | - | With "/LP" | Product with two RS-485 communication ports and without the power supply for 24VDC sensor |
| *6 | 1 | - | Without "/LP" | Product with two RS-485 communication ports (4-wire type) and without the power supply of 24VDC sensor |

*7 Product manufactured by MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED. For details of the product, contact MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.

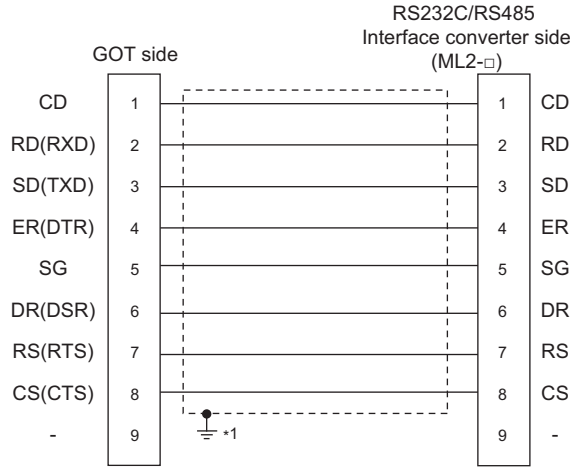
# 8.3 Connection Diagram

The following diagram shows the connection between the GOT and the temperature controller.

## 8.3.1 RS-232 cable

### ■ Connection diagram

(1) RS-232 connection diagram 1)




*1 Connect FG grounding to the appropriate part of a cable shield line.

### ■ Precautions when preparing a cable

(2) Cable length
The length of the RS-232 cable must be 15m or less.

(3) GOT side connector
For the GOT side connector, refer to the following.

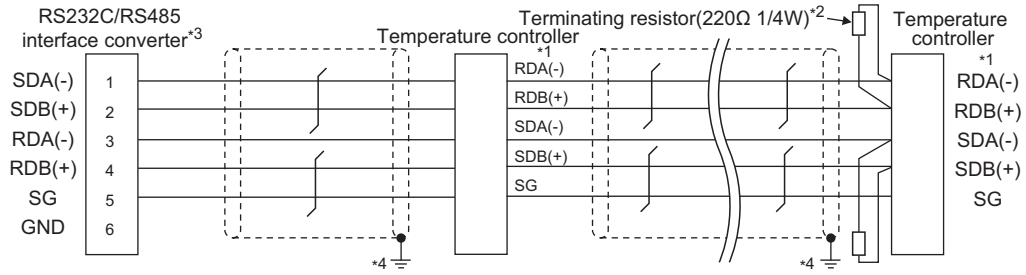
☞ 1.4.1 GOT connector specifications

(4) YOKOGAWA temperature controller side connector
Use the connector compatible with the YOKOGAWA temperature controller side.
For details, refer to the user's manual of the YOKOGAWA temperature controller.

## 8.3.2 RS-485 cable

### ■ Connection diagram

(1) RS-485 connection diagram 1)




*1 Pin No. of temperature controller differs depending on the model. Refer to the following table.

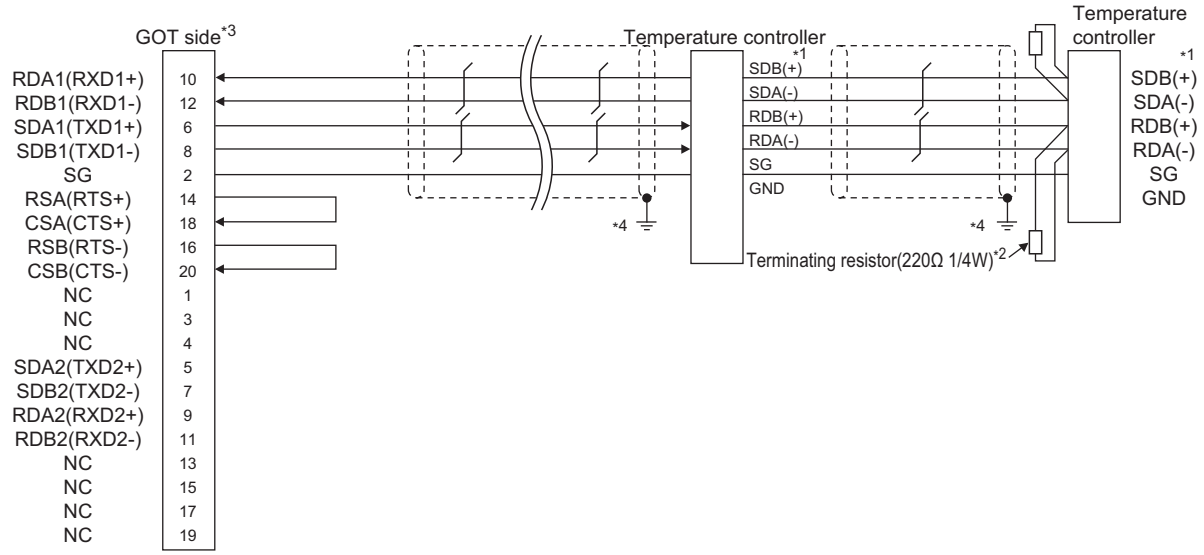
| Signal name | Model of temperature controller | |
|---|---|---|
| | GREEN Series UT/UP/UM | GREEN Series US |
| | Pin No. | Pin No. |
| RDA (-) | 26 | 24 |
| RDB (+) | 25 | 23 |
| SDB (+) | 23 | 21 |
| SDA (-) | 24 | 22 |
| SG | 27 | 25 |

*2 Terminating resistor should be provided for a temperature controller which will be a terminal.

*3 Turn on the terminating switch on the RS232C/RS485 converter at the end.

*4 Connect FG grounding to the appropriate part of a cable shield line.

(2) RS-485 connection diagram 2)




*1 Pin No. of temperature controller differs depending on the model.Refer to the following table.

| Signal name | Model of temperature controller | |
|---|---|---|
| | GREEN Series UT/UP/UM | GREEN Series US |
| | Pin No. | Pin No. |
| SDB (+) | 23 | 21 |
| SDA (-) | 24 | 22 |
| RDB (+) | 25 | 23 |
| RDA (-) | 26 | 24 |
| SG | 27 | 25 |

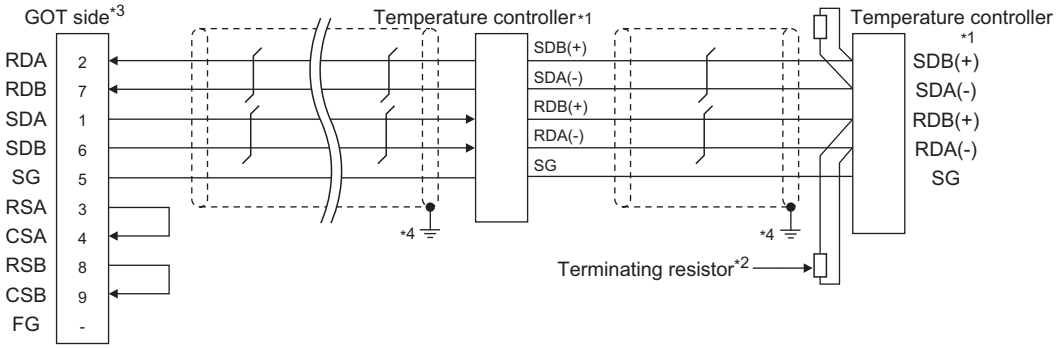
*2 Terminating resistor should be provided for a temperature controller which will be a terminal.

*3 Set the terminating resistor of GOT side which will be a terminal.

■ Connecting terminating resistors

*4 Connect FG grounding to the appropriate part of a cable shield line.

(3) RS-485 connection diagram 3)




*1 Pin No. of temperature controller differs depending on the model.Refer to the following table.

| Signal name | Model of temperature controller | | | | | |
|---|---|---|---|---|---|---|
| | GREEN Series UT/UP/UM | GREEN Series US | UTAdvanced Series | | | |
| | | | UT32A/UP35A/UM33A | UT35A/ UT55A (product condition A)/ UP55A (product condition A) | UT55A (product condition B)/ UP55A (product condition B) | UT75A |
| | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. |
| SDB (+) | 23 | 21 | 301 | 407 | 501 | 1 |
| SDA (-) | 24 | 22 | 302 | 408 | 502 | 2 |
| RDB (+) | 25 | 23 | 304 | 410 | 504 | 4 |
| RDA (-) | 26 | 24 | 305 | 411 | 505 | 5 |
| SG | 27 | 25 | 303 | 409 | 503 | 3 |

• For the product condition of UTAdvanced series, refer to the following table.

| Model | Product condition | Suffix code | | Optional suffix code | Remark |
|---|---|---|---|---|---|
| | | Function | Open network | | |
| UT55A | A | - | 1 | - | Product with the open network port of RS-485 communication (4-wire type/2-wire type) |
| | B | 1 or 2 | - | Without "/LP" | Product with two RS-485 communication ports (4-wire type/2-wire type) and without the power supply for 24VDC sensor |
| UP55A | A | Other than 3 | 1 | - | Product without the additional contact output points (DO) and with the open network port of RS-485 communication (4-wire type/2-wire type) (Standard code model) |
| | | - | - | With "/CH3" | Product with the RS-485 communication port (4-wire type/2-wire type) specified in the E3 terminal area option (Detailed code model) |
| | B | 2 | - | - | Product with two RS-485 communication ports (4-wire type/2-wire type) (Standard code model) |
| | | - | - | With "/C4" | Product with the RS-485 communication port (4-wire type/2-wire type) specified in the E4 terminal area option (Detailed code model) |

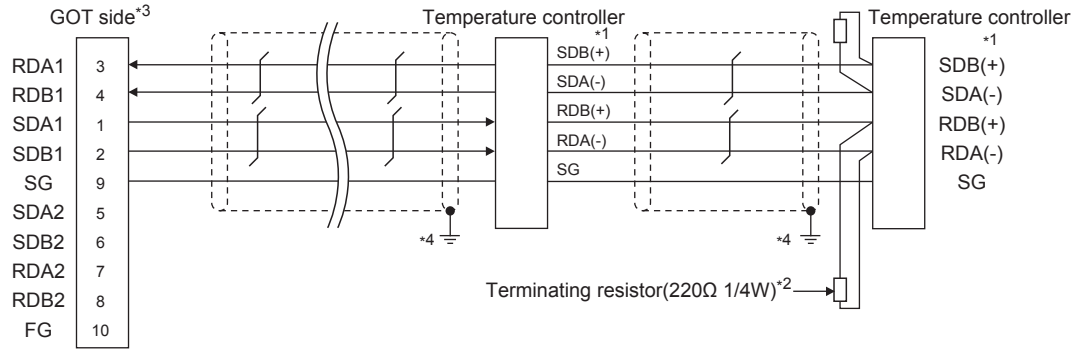
*2 Terminating resistor having 220 Ω 1/4W should be provided for a temperature controller which will be a terminal.

*3 Set the terminating resistor of GOT side which will be a terminal.

■ Connecting terminating resistors

*4 Connect FG grounding to the appropriate part of a cable shield line.

(4) RS-485 connection diagram 4)




*1 Pin No. of temperature controller differs depending on the model. Refer to the following table.

| Signal name | Model of temperature controller | | | | | |
|---|---|---|---|---|---|---|
| | GREEN Series UT/UP/UM | GREEN Series US | UTAdvanced Series | | | |
| | | | UT32A/UP35A/UM33A | UT35A/ UT55A (product condition A)/ UP55A (product condition A) | UT55A (product condition B)/ UP55A (product condition B) | UT75A |
| | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. |
| SDB (+) | 23 | 21 | 301 | 407 | 501 | 1 |
| SDA (-) | 24 | 22 | 302 | 408 | 502 | 2 |
| RDB (+) | 25 | 23 | 304 | 410 | 504 | 4 |
| RDA (-) | 26 | 24 | 305 | 411 | 505 | 5 |
| SG | 27 | 25 | 303 | 409 | 503 | 3 |

- For the product condition of UTAdvanced series, refer to the following table.

| Model | Product condition | Suffix code | | Optional suffix code | Remark |
|---|---|---|---|---|---|
| | | Function | Open network | | |
| UT55A | A | - | 1 | - | Product with the open network port of RS-485 communication (4-wire type/2-wire type) |
| | B | 1 or 2 | - | Without "/LP" | Product with two RS-485 communication ports (4-wire type/2-wire type) and without the power supply for 24VDC sensor |
| UP55A | A | Other than 3 | 1 | - | Product without the additional contact output points (DO) and with the open network port of RS-485 communication (4-wire type/2-wire type) (Standard code model) |
| | | - | - | With "/CH3" | Product with the RS-485 communication port (4-wire type/2-wire type) specified in the E3 terminal area option (Detailed code model) |
| | B | 2 | - | - | Product with two RS-485 communication ports (4-wire type/2-wire type) (Standard code model) |
| | | - | - | With "/C4" | Product with the RS-485 communication port (4-wire type/2-wire type) specified in the E4 terminal area option (Detailed code model) |

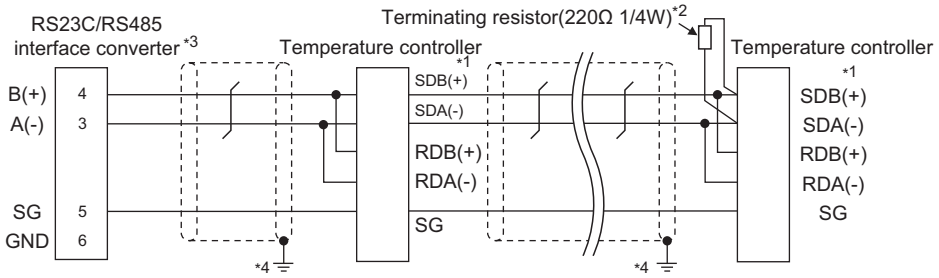
*2 Terminating resistor should be provided for a temperature controller which will be a terminal.

*3 Set the terminating resistor of GOT side which will be a terminal.

■ Connecting terminating resistors

*4 Connect FG grounding to the appropriate part of a cable shield line.

(5) RS-485 connection diagram 5)




*1 Pin No. of temperature controller differs depending on the model.Refer to the following table.

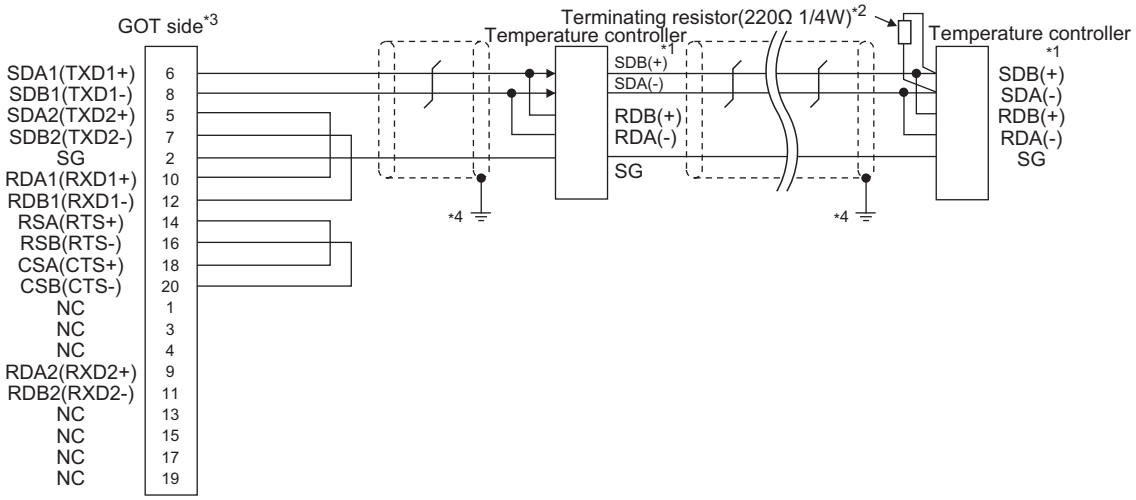
| Signal name | Model of temperature controller | |
|---|---|---|
| | GREEN Series UT/UP/UM | GREEN Series US |
| | Pin No. | Pin No. |
| SDB (+) | 23 | 21 |
| SDA (-) | 24 | 22 |
| RDB (+) | 25 | 23 |
| RDA (-) | 26 | 24 |
| SG | 27 | 25 |

*2 Terminating resistor should be provided for a temperature controller which will be a terminal.

*3 Turn on the terminating switch on the RS232C/RS485 converter at the end.

*4 Connect FG grounding to the appropriate part of a cable shield line.

(6) RS-485 connection diagram 6)




*1 Pin No. of temperature controller differs depending on the model.Refer to the following table.

| Signal name | Model of temperature controller | |
|---|---|---|
| | GREEN Series UT/UP/UM | GREEN Series US |
| | Pin No. | Pin No. |
| SDB (+) | 23 | 21 |
| SDA (-) | 24 | 22 |
| RDB (+) | 25 | 23 |
| RDA (-) | 26 | 24 |
| SG | 27 | 25 |

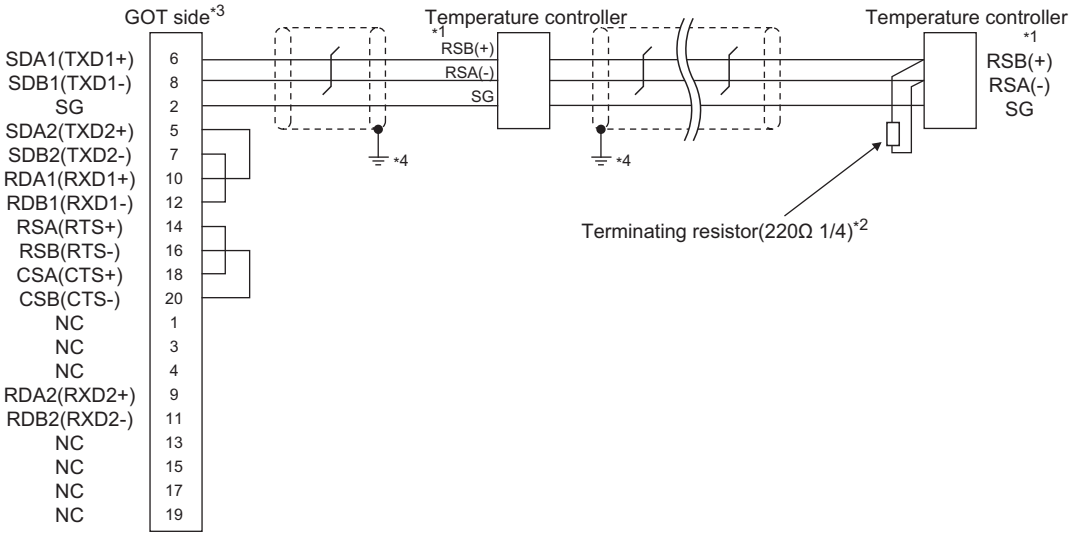
*2 Terminating resistor should be provided for a temperature controller which will be a terminal.

*3 Set the terminating resistor of GOT side which will be a terminal.

■ Connecting terminating resistors

*4 Connect FG grounding to the appropriate part of a cable shield line.

## (7) RS-485 connection diagram 7)




*1 Pin No. of temperature controller differs depending on the model.Refer to the following table.

| Signal name | Model of temperature controller | | |
|---|---|---|---|
| | GREEN Series UT750/UP750 | UT100 Series UT130/UT150/UP150 | UT100 Series UT152/UT155 |
| | Pin No. | Pin No. | Pin No. |
| RSB (+) | 28 | 3 | 26 |
| RSA (-) | 29 | 4 | 27 |
| SG | 30 | 5 | 28 |

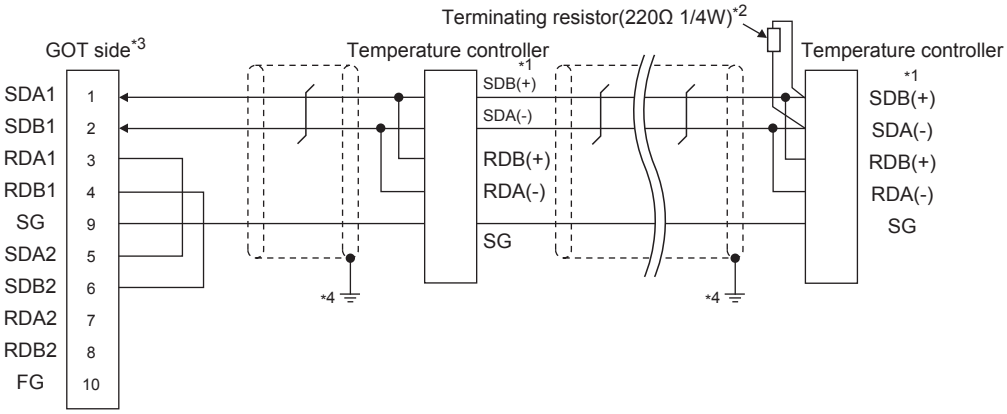
*2 Terminating resistor should be provided for a temperature controller which will be a terminal.

*3 Set the terminating resistor of GOT side which will be a terminal.

■ Connecting terminating resistors

*4 Connect FG grounding to the appropriate part of a cable shield line.

## (8) RS-485 connection diagram 8)




*1 Pin No. of temperature controller differs depending on the model.Refer to the following table.

| Signal name | Model of temperature controller | | | | | |
|---|---|---|---|---|---|---|
| | GREEN Series UT/UP/UM | GREEN Series US | UTAdvanced Series | | | |
| | | | UT32A/UP35A | UT35A/ UT55A (product condition A)/ UP55A (product condition A) | UT55A (product condition B)/ UP55A (product condition B) | UT75A |
| | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. |
| SDB (+) | 23 | 21 | 301 | 407 | 501 | 1 |
| SDA (-) | 24 | 22 | 302 | 408 | 502 | 2 |
| RDB (+) | 25 | 23 | 304 | 410 | 504 | 4 |
| RDA (-) | 26 | 24 | 305 | 411 | 505 | 5 |
| SG | 27 | 25 | 303 | 409 | 503 | 3 |

• For the product condition of UTAdvanced series, refer to the following table.

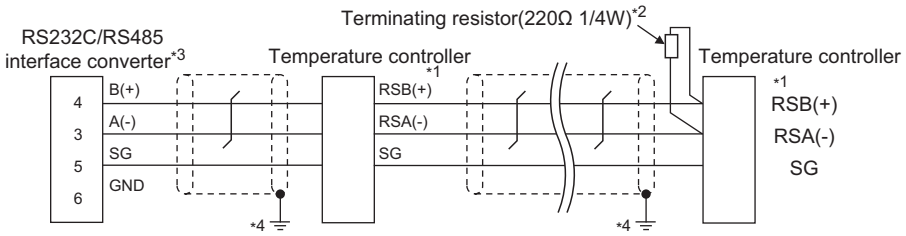
| Model | Product condition | Suffix code | | Optional suffix code | Remark |
|---|---|---|---|---|---|
| | | Function | Open network | | |
| UT55A | A | - | 1 | - | Product with the open network port of RS485 communication (4-wire type/2-wire type) |
| | B | 1 or 2 | - | Without "/LP" | Product with two RS485 communication ports (4-wire type/2-wire type) and without the power supply for 24VDC sensor |
| UP55A | A | Other than 3 | 1 | - | Product without the additional contact output points (DO) and with the open network port of RS485 communication (4-wire type/2-wire type) (Standard code model) |
| | | - | - | With "/CH3" | Product with the RS485 communication port (4-wire type/2-wire type) specified in the E3 terminal area option (Detailed code model) |
| | B | 2 | - | - | Product with two RS485 communication ports (4-wire type/2-wire type) (Standard code model) |
| | | - | - | With "/C4" | Product with the RS485 communication port (4-wire type/2-wire type) specified in the E4 terminal area option (Detailed code model) |

*2 Terminating resistor should be provided for a temperature controller which will be a terminal.
*3 Set the terminating resistor of GOT side which will be a terminal.

■ Connecting terminating resistors

*4 Connect FG grounding to the appropriate part of a cable shield line.

## (9) RS-485 connection diagram 9)

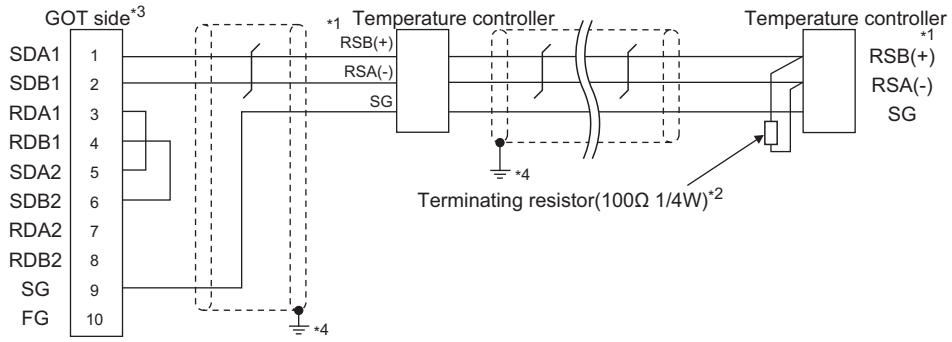



*1 Pin No. of temperature controller differs depending on the model.Refer to the following table.

| Signal name | Model of temperature controller | | | | |
|---|---|---|---|---|---|
| | GREEN Series UT750/UP750 | UT100 Series UT130/UT150/UP150 | UT100 Series UT152/UT155 | UTAdvanced Series UT52A/UM33A | UTAdvanced Series UT55A/UP55A |
| | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. |
| RSB (+) | 28 | 3 | 26 | 301 | 501 |
| RSA (-) | 29 | 4 | 27 | 302 | 502 |
| SG | 30 | 5 | 28 | 303 | 503 |

*2 Terminating resistor should be provided for a temperature controller which will be a terminal.
*3 Turn on the terminating switch on the RS232C/RS485 converter at the end.
*4 Connect FG grounding to the appropriate part of a cable shield line.

## (10) RS-485 connection diagram 10)




*1 Pin No. of temperature controller differs depending on the model. Refer to the following table.

| Signal name | Model of temperature controller | | | | |
|---|---|---|---|---|---|
| | GREEN Series UT750/UP750 | UT100 Series UT130/UT150/UP150 | UT100 Series UT152/UT155 | UTAdvanced Series UT52A/UM33A | UTAdvanced Series UT55A/UP55A |
| | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. |
| RSB (+) | 28 | 3 | 26 | 301 | 501 |
| RSA (-) | 29 | 4 | 27 | 302 | 502 |
| SG | 30 | 5 | 28 | 303 | 503 |

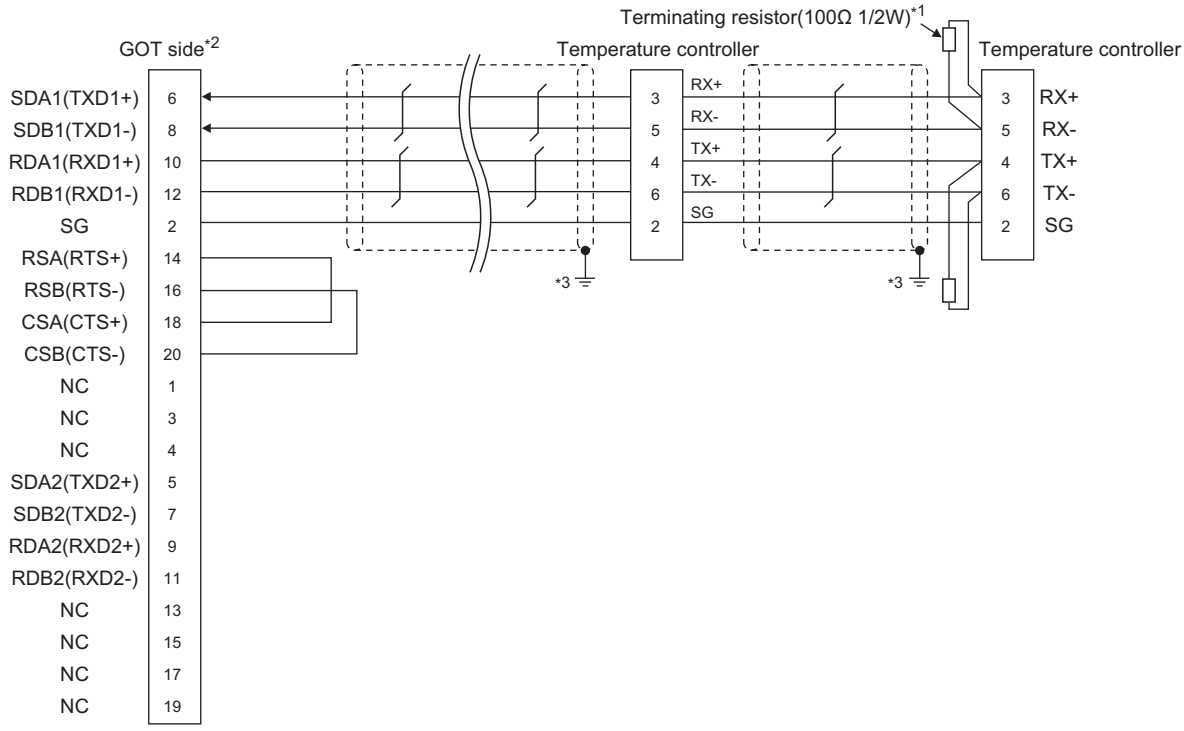
*2 Terminating resistor should be provided for a temperature controller which will be a terminal.

*3 Set the terminating resistor of GOT side which will be a terminal.

■ Connecting terminating resistors

*4 Connect FG grounding to the appropriate part of a cable shield line.

## (11) RS-485 connection diagram 11)



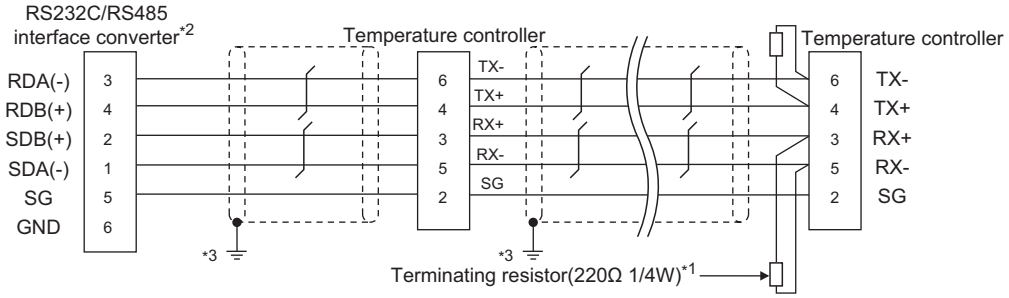

*1 Terminating resistor should be provided for a temperature controller which will be a terminal.

*2 Set the terminating resistor of GOT side which will be a terminal.

■ Connecting terminating resistors

*3 Connect FG grounding to the appropriate part of a cable shield line.

(12) RS-485 connection diagram 12)

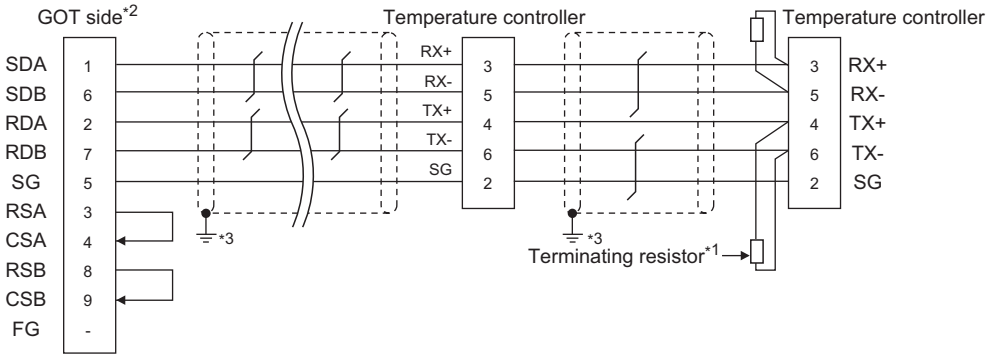



*1 Terminating resistor should be provided for a temperature controller which will be a terminal.

*2 Turn on the terminating switch on the RS232C/RS485 converter at the end.

*3 Connect FG grounding to the appropriate part of a cable shield line.

(13) RS-485 connection diagram 13)



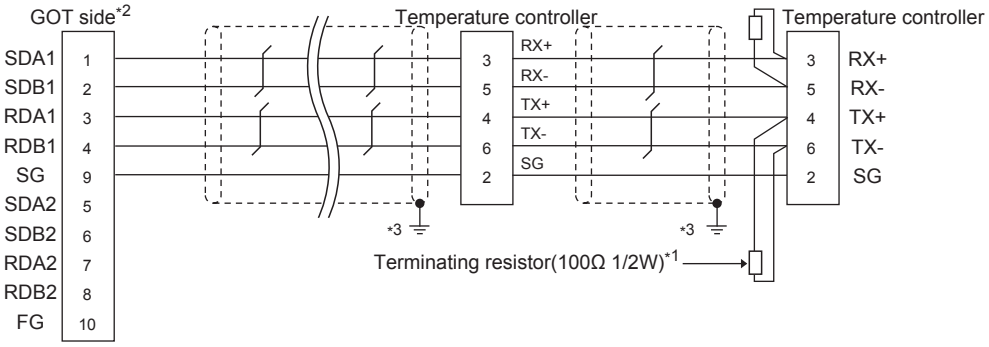

*1 Terminating resistor having 100 Ω 1/2W should be provided for a temperature controller which will be a terminal.

*2 Set the terminating resistor of GOT side which will be a terminal.

■ Connecting terminating resistors

*3 Connect FG grounding to the appropriate part of a cable shield line.

## (14) RS-485 connection diagram 14)



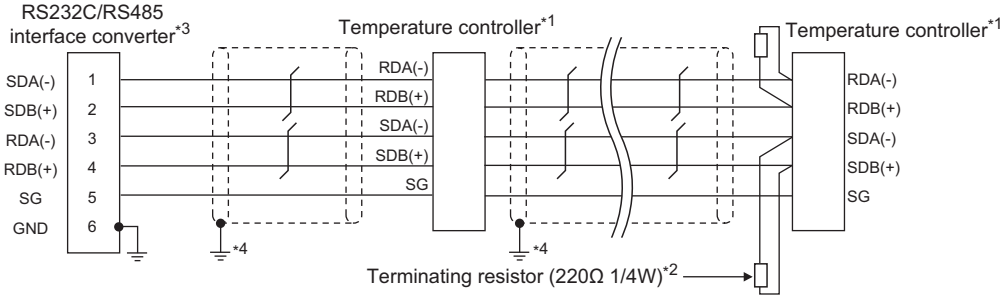

*1 Terminating resistor should be provided for a temperature controller which will be a terminal.

*2 Set the terminating resistor of GOT side which will be a terminal.

■ Connecting terminating resistors

*3 Connect FG grounding to the appropriate part of a cable shield line.

## (15) RS-485 connection diagram 15)




*1 Pin No. of temperature controller differs depending on the model. Refer to the following table.

| Signal name | Model of temperature controller | | | |
|---|---|---|---|---|
| | UTAdvanced Series | | | |
| | UT32A/UP35A/UM33A | UT35A/ UT55A (product condition A)/ UP55A (product condition A) | UT55A (product condition B)/ UP55A (product condition B) | UT75A |
| | Pin No. | Pin No. | Pin No. | Pin No. |
| SDB (+) | 301 | 407 | 501 | 1 |
| SDA (-) | 302 | 408 | 502 | 2 |
| RDB (+) | 304 | 410 | 504 | 4 |
| RDA (-) | 305 | 411 | 505 | 5 |
| SG | 303 | 409 | 503 | 3 |

- For the product condition of UTAdvanced series, refer to the following table.

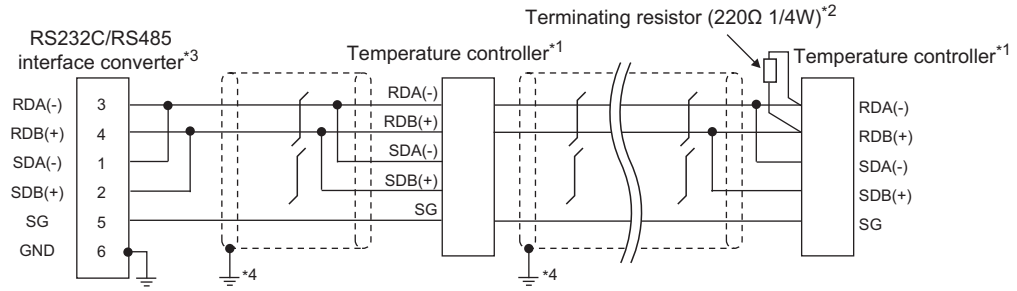
| Model | Product condition | Suffix code | | Optional suffix code | Remark |
|---|---|---|---|---|---|
| | | Function | Open network | | |
| UT55A | A | - | 1 | - | Product with the open network port of RS-485 communication (4-wire type/2-wire type) |
| | B | 1 or 2 | - | Without "/LP" | Product with two RS-485 communication ports (4-wire type/2-wire type) and without the power supply for 24VDC sensor |
| UP55A | A | Other than 3 | 1 | - | Product without the additional contact output points (DO) and with the open network port of RS-485 communication (4-wire type/2-wire type) (Standard code model) |
| | | - | - | With "/CH3" | Product with the RS-485 communication port (4-wire type/2-wire type) specified in the E3 terminal area option (Detailed code model) |
| | B | 2 | - | - | Product with two RS-485 communication ports (4-wire type/2-wire type) (Standard code model) |
| | | - | - | With "/C4" | Product with the RS-485 communication port (4-wire type/2-wire type) specified in the E4 terminal area option (Detailed code model) |

*2 Terminating resistor should be provided for a temperature controller which will be a terminal.

*3 Turn on the terminating switch on the RS232C/RS485 converter at the end.

*4 Connect FG grounding to the appropriate part of a cable shield line.

(16) RS-485 connection diagram 16)




*1 Pin No. of temperature controller differs depending on the model. Refer to the following table.

| Signal name | Model of temperature controller | | | |
|---|---|---|---|---|
| | UTAdvanced Series | | | |
| | UT32A/UP35A/UM33A | UT35A/ UT55A (product condition A)/ UP55A (product condition A) | UT55A (product condition B)/ UP55A (product condition B) | UT75A |
| | Pin No. | Pin No. | Pin No. | Pin No. |
| SDB (+) | 301 | 407 | 501 | 1 |
| SDA (-) | 302 | 408 | 502 | 2 |
| RDB (+) | 304 | 410 | 504 | 4 |
| RDA (-) | 305 | 411 | 505 | 5 |
| SG | 303 | 409 | 503 | 3 |

• For the product condition of UTAdvanced series, refer to the following table.

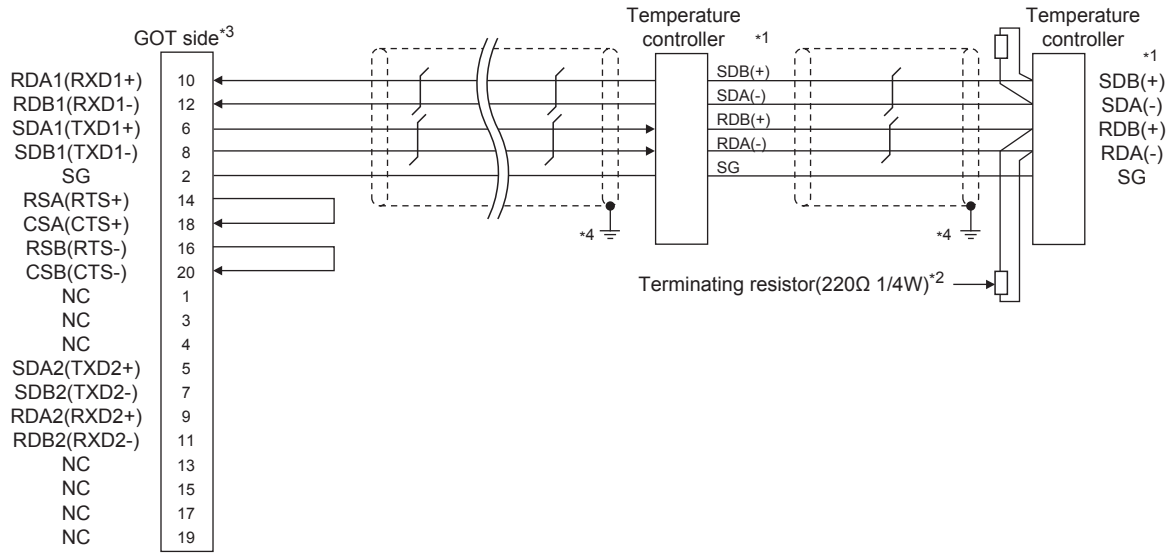
| Model | Product condition | Suffix code | | Optional suffix code | Remark |
|---|---|---|---|---|---|
| | | Function | Open network | | |
| UT55A | A | - | 1 | - | Product with the open network port of RS-485 communication (4-wire type/2-wire type) |
| | B | 1 or 2 | - | Without "/LP" | Product with two RS-485 communication ports (4-wire type/2-wire type) and without the power supply for 24VDC sensor |
| UP55A | A | Other than 3 | 1 | - | Product without the additional contact output points (DO) and with the open network port of RS-485 communication (4-wire type/2-wire type) (Standard code model) |
| | | - | - | With "/CH3" | Product with the RS-485 communication port (4-wire type/2-wire type) specified in the E3 terminal area option (Detailed code model) |
| | B | 2 | - | - | Product with two RS-485 communication ports (4-wire type/2-wire type) (Standard code model) |
| | | - | - | With "/C4" | Product with the RS-485 communication port (4-wire type/2-wire type) specified in the E4 terminal area option (Detailed code model) |

*2 Terminating resistor should be provided for a temperature controller which will be a terminal.

*3 Turn on the terminating switch on the RS232C/RS485 converter at the end.

*4 Connect FG grounding to the appropriate part of a cable shield line.

(17) RS-485 connection diagram 17)




*1 Pin No. of temperature controller differs depending on the model. Refer to the following table.

| Signal name | Model of temperature controller | | | | | |
|---|---|---|---|---|---|---|
| | GREEN Series UT/UP/ UM | GREEN Series US | UTAdvanced Series | | | |
| | | | UT32A/UP35A/UM33A | UT35A/ UT55A (product condition A)/ UP55A (product condition A) | UT55A (product condition B)/ UP55A (product condition B) | UT75A |
| | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. |
| SDB (+) | 23 | 21 | 301 | 407 | 501 | 1 |
| SDA (-) | 24 | 22 | 302 | 408 | 502 | 2 |
| RDB (+) | 25 | 23 | 304 | 410 | 504 | 4 |
| RDA (-) | 26 | 24 | 305 | 411 | 505 | 5 |
| SG | 27 | 25 | 303 | 409 | 503 | 3 |

- For the product condition of UTAdvanced series, refer to the following table.

| Model | Product condition | Suffix code | | Optional suffix code | Remark |
|---|---|---|---|---|---|
| | | Function | Open network | | |
| UT55A | A | - | 1 | - | Product with the open network port of RS-485 communication (4-wire type/2-wire type) |
| | B | 1 or 2 | - | Without "/LP" | Product with two RS-485 communication ports (4-wire type/2-wire type) and without the power supply for 24VDC sensor |
| UP55A | A | Other than 3 | 1 | - | Product without the additional contact output points (DO) and with the open network port of RS-485 communication (4-wire type/2-wire type) (Standard code model) |
| | | - | - | With "/CH3" | Product with the RS-485 communication port (4-wire type/2-wire type) specified in the E3 terminal area option (Detailed code model) |
| | B | 2 | - | - | Product with two RS-485 communication ports (4-wire type/2-wire type) (Standard code model) |
| | | - | - | With "/C4" | Product with the RS-485 communication port (4-wire type/2-wire type) specified in the E4 terminal area option (Detailed code model) |

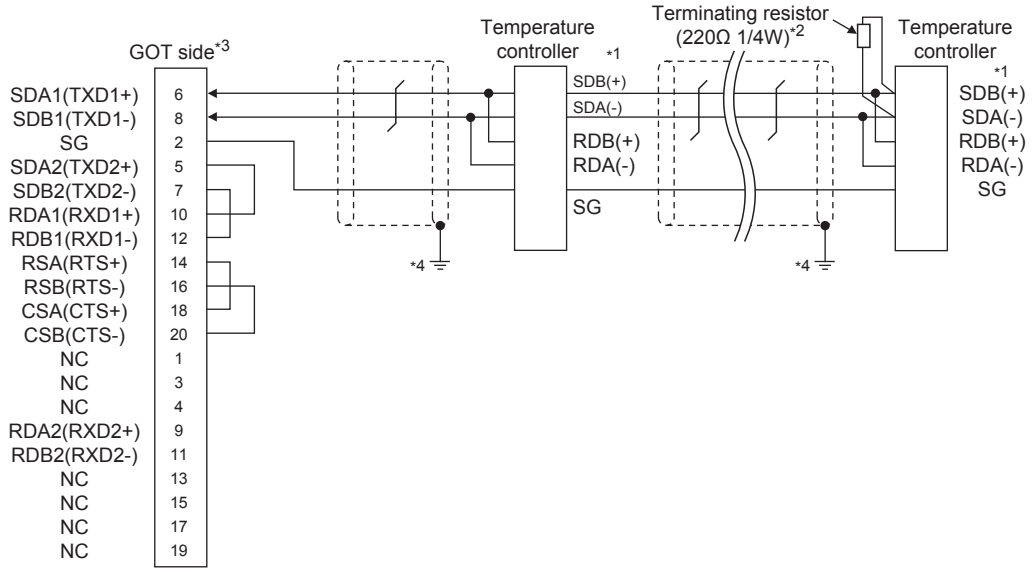
*2 Terminating resistor should be provided for a GOT and a temperature controller which will be a terminal.

*3 Set the terminating resistor of GOT side which will be a terminal.

■ Connecting terminating resistors

*4 Connect FG grounding to the appropriate part of a cable shield line.

(18) RS-485 connection diagram 18)




*1 Pin No. of temperature controller differs depending on the model. Refer to the following table.

| Signal name | Model of temperature controller | | | | | |
|---|---|---|---|---|---|---|
| | GREEN Series UT/UP/ UM | GREEN Series US | UTAdvanced Series | | | |
| | | | UT32A/UP35A | UT35A/ UT55A (product condition A)/ UP55A (product condition A) | UT55A (product condition B)/ UP55A (product condition B) | UT75A |
| | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. |
| SDB (+) | 23 | 21 | 301 | 407 | 501 | 1 |
| SDA (-) | 24 | 22 | 302 | 408 | 502 | 2 |
| RDB (+) | 25 | 23 | 304 | 410 | 504 | 4 |
| RDA (-) | 26 | 24 | 305 | 411 | 505 | 5 |
| SG | 27 | 25 | 303 | 409 | 503 | 3 |

- For the product condition of UTAdvanced series, refer to the following table.

| Model | Product condition | Suffix code | | Optional suffix code | Remark |
|---|---|---|---|---|---|
| | | Function | Open network | | |
| UT55A | A | - | 1 | - | Product with the open network port of RS-485 communication (4-wire type/2-wire type) |
| | B | 1 or 2 | - | Without "/LP" | Product with two RS-485 communication ports (4-wire type/2-wire type) and without the power supply for 24VDC sensor |
| UP55A | A | Other than 3 | 1 | - | Product without the additional contact output points (DO) and with the open network port of RS-485 communication (4-wire type/2-wire type) (Standard code model) |
| | | - | - | With "/CH3" | Product with the RS-485 communication port (4-wire type/2-wire type) specified in the E3 terminal area option (Detailed code model) |
| | B | 2 | - | - | Product with two RS-485 communication ports (4-wire type/2-wire type) (Standard code model) |
| | | - | - | With "/C4" | Product with the RS-485 communication port (4-wire type/2-wire type) specified in the E4 terminal area option (Detailed code model) |

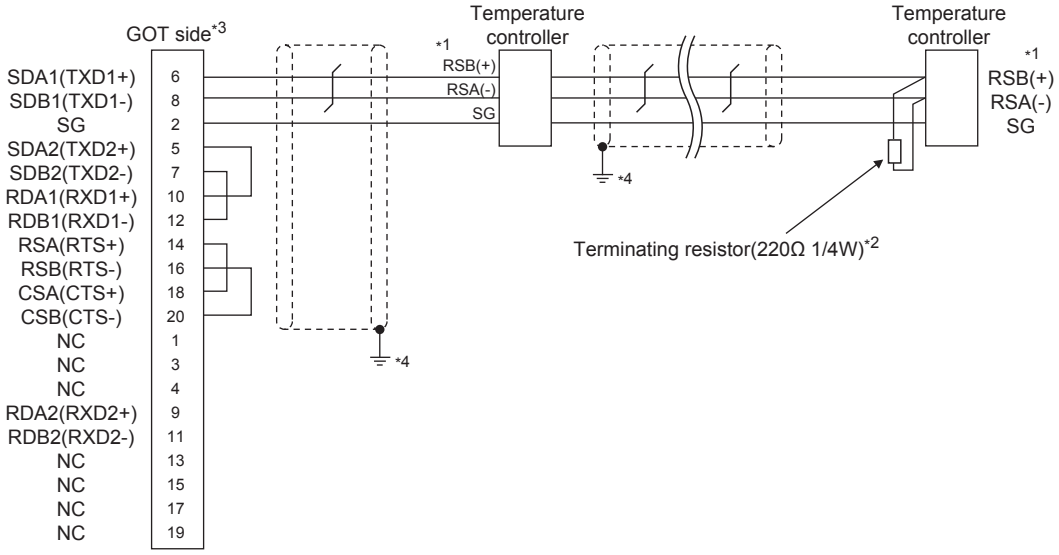
*2 Terminating resistor should be provided for a GOT and a temperature controller which will be a terminal.

*3 Set the terminating resistor of GOT side which will be a terminal.

■ Connecting terminating resistors

*4 Connect FG grounding to the appropriate part of a cable shield line.

(19) RS-485 connection diagram 19)




*1 Pin No. of temperature controller differs depending on the model. Refer to the following table.

| Signal name | Model of temperature controller | | | | |
|---|---|---|---|---|---|
| | GREEN Series UT750/UP750 | UT100 Series UT130/UT150/UP150 | UT100 Series UT152/UT155 | UTAdvanced Series UT52A/UM33A | UTAdvanced Series UT55A/UP55A |
| | Pin No. | Pin No. | Pin No. | Pin No. | Pin No. |
| RSB (+) | 28 | 3 | 26 | 301 | 501 |
| RSA (-) | 29 | 4 | 27 | 302 | 502 |
| SG | 30 | 5 | 28 | 303 | 503 |

*2 Terminating resistor should be provided for a GOT and a temperature controller which will be a terminal.

*3 Set the terminating resistor of GOT side which will be a terminal.

■ Connecting terminating resistors

*4 Connect FG grounding to the appropriate part of a cable shield line.

## ■ Precautions when preparing a cable

(1) Cable length
The length of the RS-485 cable must be within the maximum distance.

(2) GOT side connector
For the GOT side connector, refer to the following.

☞ 1.4.1 GOT connector specifications

(3) YOKOGAWA temperature controller side connector
Use the connector compatible with the YOKOGAWA temperature controller side.
For details, refer to the user's manual of the YOKOGAWA temperature controller.

## ■ Connecting terminating resistors

(1) GOT side
Set the terminating resistor setting switch of the GOT main unit to "100 OHM".
For the procedure to set the terminating resistor, refer to the following.

☞ 1.4.3 Terminating resistors of GOT

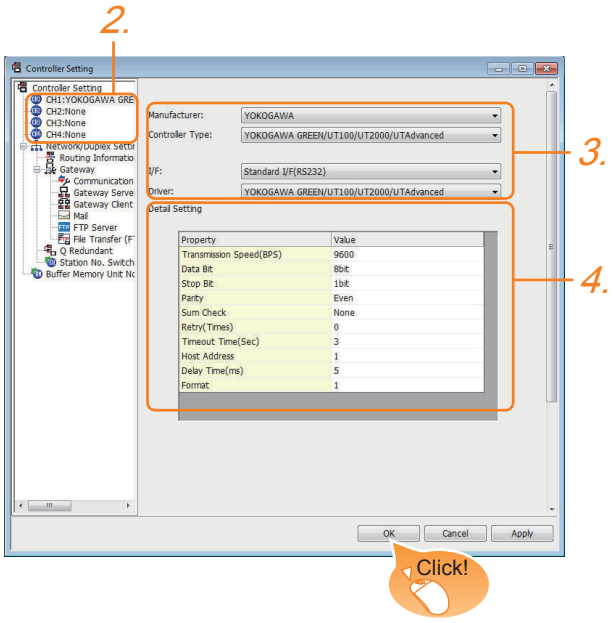
(2) YOKOGAWA temperature controller side
When connecting a YOKOGAWA temperature controller to the GOT, a terminating resistor must be connected.

☞ 8.5 Temperature Controller Side Setting

# 8.4 GOT Side Settings

## 8.4.1 Setting communication interface (Communication settings)

Set the channel of the connected equipment.




1. Select [Common] → [Controller Setting] from the menu.
2. The Controller Setting window is displayed. Select the channel to be used from the list menu.
3. Set the following items.
   - Manufacturer: YOKOGAWA
   - Controller type: YOKOGAWA GREEN/UT100/UT2000/UTAdvanced
   - I/F: Interface to be used
   - Driver: YOKOGAWA GREEN/UT100/UT2000/UTAdvanced
4. The detailed setting is displayed after Manufacturer, Controller Type, I/F, and Driver are set.
   Make the settings according to the usage environment.
   ☞ 8.4.2 Communication detail settings

Click the [OK] button when settings are completed.

**POINT**

The settings of connecting equipment can be confirmed in [I/F Communication Setting].
For details, refer to the following.
☞ 1.1.2 I/F communication setting

## 8.4.2 Communication detail settings

| Property | Value |
|---|---|
| Transmission Speed(BPS) | 9600 |
| Data Bit | 8 bit |
| Stop Bit | 1 bit |
| Parity | Even |
| Sum Check | None |
| Retry(Times) | 0 |
| Timeout Time(Sec) | 3 |
| Host Address | 1 |
| Delay Time(ms) | 5 |
| Format | 1 |

| Item | Description | Range |
|---|---|---|
| Transmission Speed | Set this item when change the transmission speed used for communication with the connected equipment.<br>(Default: 9600bps) | 4800bps,<br>9600bps,<br>19200bps,<br>38400bps,<br>57600bps,<br>115200bps |
| Data Bit | Set this item when change the data length used for communication with the connected equipment.<br>(Default: 8bits) | 7bits/8bits |
| Stop Bit | Specify the stop bit length for communications.<br>(Default: 1bit) | 1bit/2bits |
| Parity | Specify whether or not to perform a parity check, and how it is performed during communication.<br>(Default: Even) | None<br>Even<br>Odd |
| Sum Check | Set whether or not to perform a sum check during communication.<br>(Default: No) | Done, None |
| Retry | Set the number of retries to be performed when a communication error occurs.<br>(Default: 0time) | 0 to 5times |
| Timeout Time | Set the time period for a communication to time out.<br>(Default: 3sec) | 1 to 30sec |
| Host Address | Specify the host address (station No. of the GOT to which the temperature controller is connected) in the connected network.<br>(Default: 1) | 1 to 99 |
| Delay Time | Set this item to adjust the transmission timing of the communication request from the GOT.<br>(Default: 5ms) | 0 to 300ms |
| Format | Select the communication format.<br>(Default: 1)<br>Format 1:<br>Accessible to GREEN/UT100/UT2000/UTAdvanced Series<br>Format 2:<br>Accessible to GREEN/UT2000/UTAdvanced Series, Not accessible to UT100 Series. | 1/2 |

**POINT**

(1) Format
- When connecting to UT100 Series, specify the format 1.
- When connecting to only GREEN/UT2000/ UTAdvanced Series, specifying the format 2 is recommended.

(2) Communication interface setting by the Utility
The communication interface setting can be changed on the Utility's [Communication setting] after writing [Communication Settings] of project data.
For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

(3) Precedence in communication settings
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

# 8.5 Temperature Controller Side Setting

**POINT**

(1) YOKOGAWA temperature controller
For details of YOKOGAWA temperature controller, refer to the following manual.

☞ User's Manual of the YOKOGAWA temperature controller

(2) RS232C/RS485 converter
For details on communication settings of the RS232C/RS485 converter, refer to the following manual.

☞ User's Manual of RS232C/RS485 converter

| Model name | | Refer to |
|---|---|---|
| Temperature controller | GREEN | 8.5.1 |
| | UT100 | 8.5.2 |
| | UT2000 | 8.5.3 |
| | UTAdvanced | 8.5.4 |
| RS232C/RS485 converter | ML2-☐ | 8.5.5 |

## 8.5.1 Connecting to GREEN Series

### ■ Communication settings

Make the communication settings by operating the key of the temperature controller.

(1) For the UT☐/UP☐/UM☐/US1000 (except UT750, UP750)

| Item | Set value |
|---|---|
| Transmission speed | 9600bps (fixed) |
| Data bit*1 | 7bits, 8bits |
| Parity bit*1 | Even, odd, none |
| Stop bit*1 | 1bit, 2bits |
| Address*1*2 | 1 to 99 |
| Protocol selection*1 | 0: PC link communication (without sum check)<br>1: PC link communication (with sum check) |

*1 Adjust the settings with GOT settings.
*2 Avoid duplication of the address with any of the other units.

(2) For the UT750, UP750

| Item | Set value | |
|---|---|---|
| Transmission speed*1 | RS-485 communication | 9600bps (fixed) |
| | High performance RS-485 communication | 9600bps, 19200bps, 38400bps |
| Data bit*1 | 7bits, 8bits | |
| Parity bit*1 | Even, odd, none | |
| Stop bit*1 | 1bit, 2bits | |
| Address*1*2 | 1 to 99 | |
| Protocol selection*1 | RS-485 communication | 0: PC link communication (without sum check)<br>1: PC link communication (with sum check) |
| | High performance RS-485 communication | 0: PC link communication (without sum check)<br>1: PC link communication (with sum check) |

*1 Adjust the settings with GOT settings.
*2 Avoid duplication of the address with any of the other units.

## 8.5.2 Connecting to UT100 Series

### ■ Communication settings

Make the communication settings by operating the key of the temperature controller.

| Item | Set value |
|---|---|
| Transmission speed | 9600bps |
| Data bit*1 | 7bits, 8bits |
| Parity bit*1 | Even, odd, none |
| Stop bit*1 | 1bit, 2bits |
| Address*1*2 | 1 to 99 |
| Protocol selection*1 | 0: PC link communication (without sum check)<br>1: PC link communication (with sum check) |

*1 Adjust the settings with GOT settings.
*2 Avoid duplication of the address with any of the other units.

## 8.5.3 Connecting to UT2000 Series

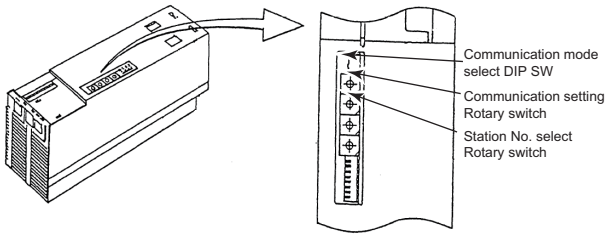
### ■ Communication settings

Make the communication settings using setting switches.

| Item | Set value |
|---|---|
| Transmission speed | 9600bps |
| Data bit*1 | 8bits (fixed) |
| Parity bit*1 | Even, odd, none |
| Stop bit*1 | 1bit (fixed) |
| Station No.*1*2 | 1 to 16 |
| Communication mode | PC link communication mode |

*1 Adjust the settings with GOT settings.
*2 Avoid duplication of the station No. with any of the other units.

### ■ Settings by switch

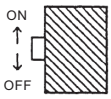



(1) Settings of the transmission speed and the parity
Make those settings by operating the communication setting Rotary switch.

| Switch position | Transmission speed | Parity bit |
|---|---|---|
| 0 | 9600bps | None |
| 1 | | Odd |
| 2 | | Even |

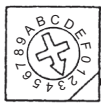
(2) Communication mode settings
Make this setting by operating the communication mode select DIP SW.

| Switch position | Communication mode |
|---|---|
| ON | PC link communication mode |




(3) A setting of the station No.
Make this setting by operating the station No. select Rotary switch.

| Switch position | Station No. |
|---|---|
| 0 | 1 |
| 1 | 2 |
| 2 | 3 |
| 3 | 4 |
| 4 | 5 |
| 5 | 6 |
| 6 | 7 |
| 7 | 8 |
| 8 | 9 |
| 9 | 10 |
| A | 11 |
| B | 12 |
| C | 13 |
| D | 14 |
| E | 15 |
| F | 16 |



## 8.5.4 Connecting to UTAdvanced Series

### ■ Communication settings

Make the communication settings by operating the key of the temperature controller.

| Item | Set value |
|---|---|
| Transmission speed*1 | 9600bps, 19200bps, 38400bps |
| Data bit*1 | 7bits, 8bits |
| Parity bit*1 | Even, odd, none |
| Stop bit*1 | 1bit, 2bits |
| Address*1*2 | 1 to 99 |
| Minimum response time*1 | 0 to 10 (x 10ms) |
| Protocol selection*1 | 0: PC link communication (without sum check)<br>1: PC link communication (with sum check) |

*1 Adjust the settings with GOT settings.
*2 Avoid duplication of the address with any of the other units.

## 8.5.5 Connecting to RS232C/RS485 converter (ML2-[])

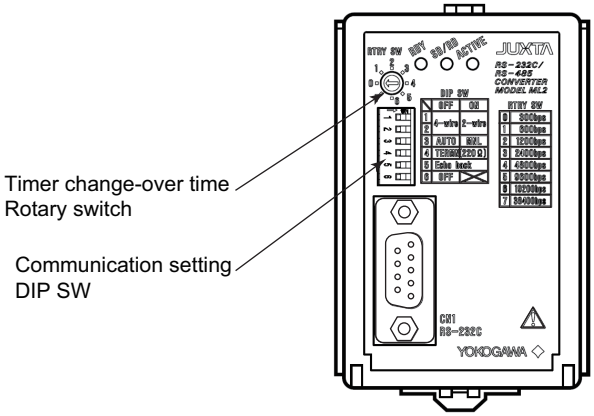
### ■ Communication settings

Make the communication settings using setting switches.

| Item | Set value |
|---|---|
| Transmission speed*1 | 9600bps, 19200bps, 38400bps |
| Setting (2-wire/4-wire)*2 | 2-wire type or 4-wire type |
| Terminating resistor*2 | With, Without |
| Echo back | OFF |
| RS-485 driver-active control | AUTO |

*1 Adjust the settings with GOT settings.
*2 Refer to the following connection diagram for setting.
8.3.2 RS-485 cable

### ■ Settings by switch




(1) Settings of the setting (2-wire/4-wire), the RS-485 driver-active control, the terminating resistor, the echo back

Make those settings by operating the communication setting DIP SW.

| Setting item | Set value | Switch position | | | | | |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 |
| Setting(2-wire/4-wire) | 4-wire type | OFF | OFF | | | | — |
| | 2-wire type | ON | ON | | | | |
| RS-485 driver-active control | AUTO | | | OFF | | | |
| Terminating resistor | with | | | | ON | | |
| | without | | | | OFF | | |
| Echo back | OFF | | | | | OFF | |

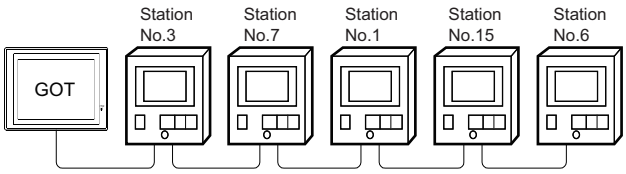
(2) A setting of the transmission speed

Make this setting by operating the timer change-over time Rotary switch.

| Switch position | Transmission speed |
|---|---|
| 5 | 9600bps |
| 6 | 19200bps |
| 7 | 38400bps |

## 8.5.6 Station number setting

Set each station number so that no station number overlaps.
The station number can be set without regard to the cable connection order. There is no problem even if station numbers are not consecutive.



Examples of station number setting

(1) Direct specification
When setting the device, specify the station number of the temperature controller of which data is to be changed.

| Specification range |
|---|
| 1 to 99 |

(2) Indirect specification
When setting the device, indirectly specify the station number of the inverter of which data is to be changed using the 16-bit GOT internal data register (GD10 to GD25).
When specifying the station No. from 100 to 115 on GT Designer3, the value of GD10 to GD25 compatible to the station No. specification will be the station No. of the temperature controller.

| Specification station NO. | Compatible device | Setting range |
|---|---|---|
| 100 | GD10 | 1 to 99<br>For the setting other than the above, error (dedicated device is out of range) will occur. |
| 101 | GD11 | |
| 102 | GD12 | |
| 103 | GD13 | |
| 104 | GD14 | |
| 105 | GD15 | |
| 106 | GD16 | |
| 107 | GD17 | |
| 108 | GD18 | |
| 109 | GD19 | |
| 110 | GD20 | |
| 111 | GD21 | |
| 112 | GD22 | |
| 113 | GD23 | |
| 114 | GD24 | |
| 115 | GD25 | |

(3) All station specification
Target station differs depending on write-in operation or read-out operation.
- For write-in operation, all station will be a target.In the WORD BIT write-in operation, only the temperature controller whose station No. is the same as host address is applicable.
  8.4.2 Communication detail settings
- In the read-out operation, only the temperature controller whose station No. is the same as host address is applicable.
  For details of host address setting, refer to the following.
  8.4.2 Communication detail settings

**POINT**

The all station specification can be set for the following temperature controllers only.
UT420, UT450, UT520, UT550, T551, UT750, UP550, UP750,
US1000

# 8.6 Device Range that Can Be Set

The device ranges of controller that can be used for GOT are as follows.

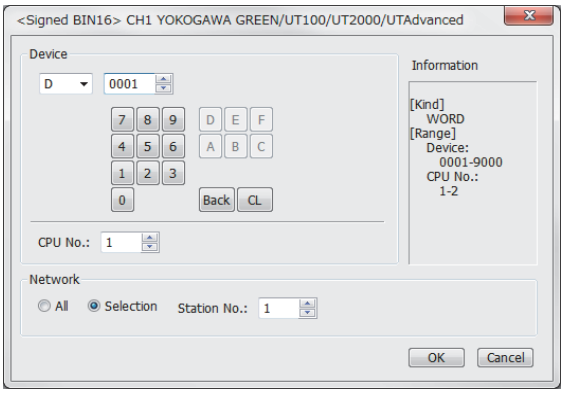
Note that the device ranges in the following tables are the maximum values that can be set in GT Designer3.

The device specifications of controllers may differ depending on the models, even though belonging to the same series.

Please make the setting according to the specifications of the controller actually used.

When a non-existent device or a device number outside the range is set, other objects with correct device settings may not be monitored.

## ■ Setting item




| Item | | Description |
|---|---|---|
| Device | | Set the device name, device number, and bit number.<br>The bit number can be set only when specifying the bit of word device. |
| | CPU No.*2 | Set the CPU No. (1, 2) of the device to be monitored.<br>When device B is selected, the CPU No. is fixed to 1. |
| Information | | Displays the device setting range which are selected in [Device]. |
| Network | | Set the monitor target of the set device. |
| | All | Select this item when writing data to all the temperature controllers connected.<br>When bit specification of word device is performed, data are written to the temperature controller of the station No. set for [Host Address] of the communication detail settings.<br>Monitoring and writing with bit specification of word device are performed only for the station No. set for [Host Address].<br>(When writing the data in numerical input, the data is written to the connected temperature controller other than the ones specified by the word device during input, and the temperature controller set for [Host Address] is monitored during other than input (displaying).) |
| | Station No. | Select this item when monitoring the temperature controller of the specified station No.<br>After selecting, set the station No. in the following range.<br>1 to 99 : To monitor the temperature controller of the specified station No.<br>100 to 115 : To specify the station No. of the temperature controller to be monitored by the value of GOT data register (GD).*1 |

*1 The following shows the relation between station numbers of the temperature controller and the GOT data register.

| Station No. | GOT data register (GD) | Setting range |
|---|---|---|
| 100 | GD10 | 1 to 99<br>(If setting a value outside the range above, a device range error occurs.) |
| 101 | GD11 | |
| : | : | |
| 114 | GD24 | |
| 115 | GD25 | |

*2 When there is no setting for the CPU No. in the communication settings on the temperature controller side, set the CPU No. on the GOT side to (1) (default).

## 8.6.1 YOKOGAWA GREEN/UT100/UT2000/UTAdvanced

| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | Internal relay (I) | I0001 to I7072 | Decimal |
| | The bit specification of the word device*1 | Setting range of each word device | — |
| Word device | Data register (D)*1 | D0001 to D9000 | Decimal |
| | File register (B)*1*2 | B0001 to B1600 | |
| | The word specification of the bit device | Setting range of each bit devices | — |

*1 Only 16-bit (1-word) designation is allowed.
*2 This is available only for UP750 and UP550.

# 8.7 Precautions

## ■ Station number settings of temperature controller

In the system configuration, the temperature controller with the station number set with the host address must be included.For details of host address setting, refer to the following.

☞ 8.4.2 Communication detail settings

## ■ GOT clock control

Since the temperature controller does not have a clock function, the settings of "time adjusting" or "time broad cast" by GOT clock control will be disabled.

## ■ Disconnecting some of multiple connected equipment

The GOT can disconnect some of multiple connected equipment by setting GOT internal device.For example, the faulty station where a communication timeout error occurs can be disconnected from connected equipment.
For details of GOT internal device setting, refer to the following manual.

☞ GT Designer3 (GOT2000) Help

# 9

# CONNECTION TO RKC TEMPERATURE CONTROLLER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9.2 System Configuration . . . . . 9 - 4
9.3 Connection Diagram . . . . . 9 - 30
9.4 GOT Side Settings . . . . . 9 - 39
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9.6 Device Range that Can Be Set . . . . . 9 - 52
9.7 Precautions . . . . . 9 - 53

# 9. CONNECTION TO RKC TEMPERATURE CONTROLLER

## 9.1 Connectable Model List

The following table shows the connectable models.

| Series | Model name*1 | Clock | Communication Type | Connectable model | Refer to |
|---|---|---|---|---|---|
| SR Mini HG | H-PCP-J | × | RS-232<br>RS-422<br>RS-485 | GT27 GT25 GT23 | 9.2.1 |
| | H-PCP-A | × | RS-232<br>RS-422 | GT27 GT25 GT23 | 9.2.2 |
| | H-PCP-B | | | | |
| SRZ | Z-TIO | × | RS-232<br>RS-422<br>RS-485 | GT27 GT25 GT23 | 9.2.3 |
| | Z-DIO | | | | |
| | Z-CT | | | | |
| CB | CB100 | × | RS-232<br>RS-485 | GT27 GT25 GT23 | 9.2.4 |
| | CB400 | | | | |
| | CB500 | | | | |
| | CB700 | | | | |
| | CB900 | | | | |
| FB | FB100 | × | RS-485 | GT27 GT25 GT23 | 9.2.5 |
| | FB400 | × | RS-232<br>RS-422<br>RS-485 | | |
| | FB900 | | | | |
| RB | RB100 | × | RS-485 | GT27 GT25 GT23 | 9.2.6 |
| | RB400 | | | | |
| | RB500 | | | | |
| | RB700 | | | | |
| | RB900 | | | | |
| PF | PF900<br>PF901 | × | RS-232<br>RS-422<br>RS-485 | GT27 GT25 GT23 | 9.2.7 |
| HA | HA400/401<br>HA900/901 | × | RS-232<br>RS-422<br>RS-485 | | |
| RMC | RMC500 | × | RS-485 | | |
| MA | MA900<br>MA901 | × | RS-232<br>RS-422<br>RS-485 | | |
| AG | AG500 | × | RS-422<br>RS-485 | | |
| THV | THV-A1 | × | RS-422<br>RS-485 | GT27 GT25 GT23 | 9.2.8 |
| SA | SA100<br>SA200 | × | RS-232<br>RS-485 | GT27 GT25 GT23 | 9.2.7 |

(Continued to next page)

| Series | Model name*1 | Clock | Communication Type | Connectable model | Refer to |
|---|---|---|---|---|---|
| SRX | X-TIO | × | RS-232<br>RS-485 | GT27 GT25 GT23 | 9.2.9 |
| SB1 | SB1 | × | RS-232<br>RS-485 | GT27 GT25 GT23 | 9.2.10 |
| B400 | B400 | × | RS-232<br>RS-485 | GT27 GT25 GT23 | 9.2.11 |

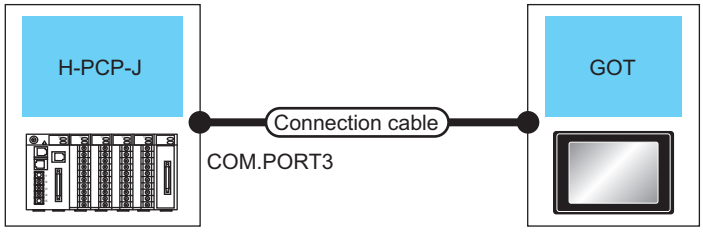
*1 From the models of temperature controller, select the detailed model name which supports each communication type and communication protocol (MODBUS). For details of RKC temperature controller detailed model names, refer to the following catalog.

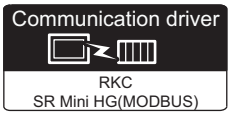
Catalog of RKC temperature controllers

# 9.2 System Configuration

## 9.2.1 Connecting to H-PCP-J

■ When connecting to one temperature controller

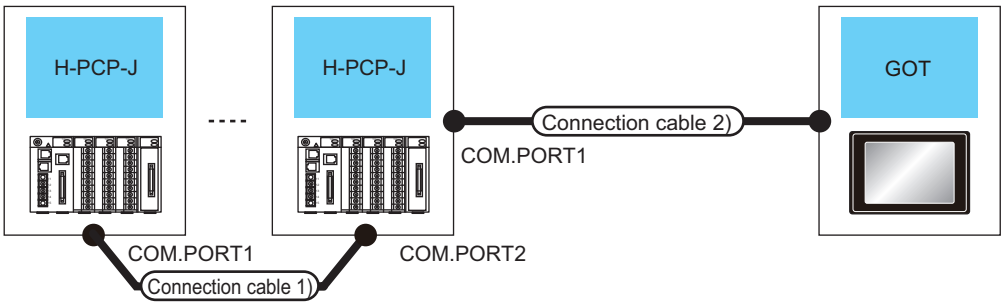


| Temperature controller | | Connection cable | | Conversion connector[*1] | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | Communication Type | Cable model<br>Connection diagram number | Max. distance | Model name | Option device | Model | |
| H-PCP-J | RS-232 | W-BF-28-0500(0.5m)[*1]<br>W-BF-28-1000(1m)[*1]<br>W-BF-28-3000(3m)[*1]<br>or<br>User preparing RS-232 connection diagram 1) | 15m | - | - (Built into GOT) | GT27 GT25 GT23 | Up to 1 temperature controller for 1 GOT |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | | W-BF-02-0500(0.5m)[*1]<br>W-BF-02-1000(1m)[*1]<br>W-BF-02-3000(3m)[*3] | 15m | FAX067[*1] | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | RS-422 | User preparing RS-422 connection diagram 1) | 1200m | - | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | GT15-RS4-9S | GT27 GT25 | |
| | RS-485 | User preparing RS-485 connection diagram 1) | 1200m | - | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | GT15-RS4-9S | GT27 GT25 | |
| | | User preparing RS-485 connection diagram 3) | 1200m | - | FA-LTBGT2R4CBL05(0.5m)[*3]<br>FA-LTBGT2R4CBL10(1m)[*3]<br>FA-LTBGT2R4CBL20(2m)[*3] | GT27 GT25 GT23 | |
| | | W-BF-01-0500(0.5m)[*1*2]<br>W-BF-01-1000(1m)[*1*2]<br>W-BF-01-3000(3m)[*1*2]<br>or<br>User preparing RS-485 connection diagram 2) | 1200m | - | GT15-RS4-TE | GT27 GT25 | |

*1 Product manufactured by RKC. For details of the product, contact RKC.
*2 To use the dedicated cable, conversion of the cable may be necessary.
*3 Product manufactured by MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED. For details of the product, contact MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.

■ When connecting to multiple temperature controllers

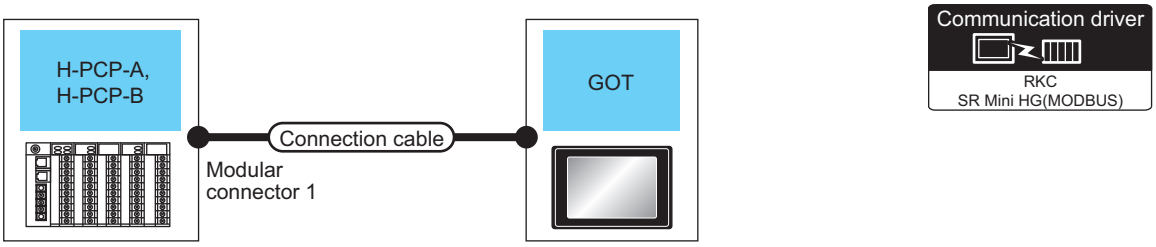



| Temperature controller | | Connection cable 1) | Connection cable 2) | Max. distance | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | Communication Type | Cable model<br>Connection diagram number | Cable model<br>Connection diagram number | | Option device | Model | |
| H-PCP-J | RS-422 | W-BF-02-0500(0.5m)*3<br>W-BF-02-1000(1m)*3<br>W-BF-02-3000(3m)*3 | User preparing RS-422 connection diagram 1) | 1200m*1 | - (Built into GOT) | GT27 GT25 GT23 | Up to 16 temperature controllers for 1 GOT |
| | | | | | GT15-RS4-9S | GT27 GT25 | |
| | RS-485 | W-BF-02-0500(0.5m)*3<br>W-BF-02-1000(1m)*3<br>W-BF-02-3000(3m)*3 | User preparing RS-485 connection diagram 1) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | GT15-RS4-9S | GT27 GT25 | |
| | | | User preparing RS-485 connection diagram 3) | 1200m*2 | FA-LTBGT2R4CBL05(0.5m)*5<br>FA-LTBGT2R4CBL10(1m)*5<br>FA-LTBGT2R4CBL20(2m)*5 | GT27 GT25 GT23 | |
| | | | W-BF-01-0500(0.5m)*3*4<br>W-BF-01-1000(1m)*3*4<br>W-BF-01-3000(3m)*3*4<br>or<br>User preparing RS-485 connection diagram 2) | 1200m*1 | GT15-RS4-TE | GT27 GT25 | |

*1 The total length of the connection cable 1) + connection cable 2)
*2 The total length of the connection cable 1) + connection cable 2) + option device cable
*3 Product manufactured by RKC. For details of the product, contact RKC.
*4 To use the dedicated cable, conversion of the cable may be necessary.
*5 Product manufactured by MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED. For details of the product, contact MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.

## 9.2.2 Connecting to H-PCP-A or H-PCP-B

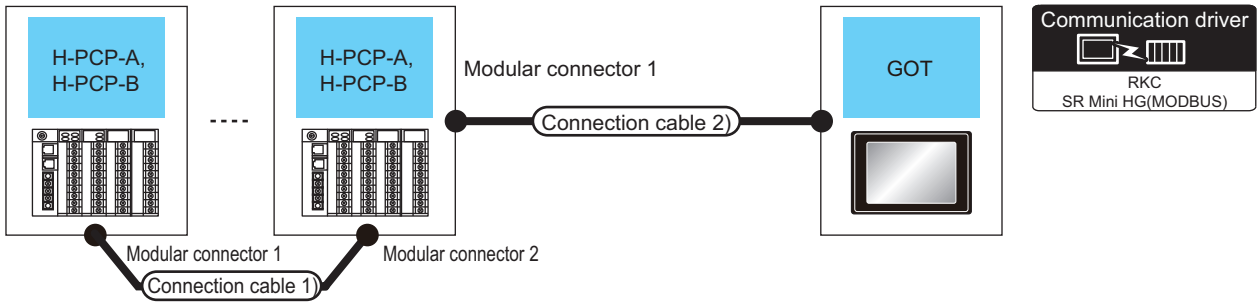
■ When connecting to one temperature controller




| Temperature controller | | Connection cable | | Conversion connector*1 | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | Communication Type | Cable model<br>Connection diagram number | Max. distance | | Option device | Model | |
| H-PCP-A<br>H-PCP-B | RS-232 | W-BF-28-0500(0.5m)*1<br>W-BF-28-1000(1m)*1<br>W-BF-28-3000(3m)*1<br>or<br>User preparing RS-232 connection diagram 1) | 15m | - | - (Built into GOT) | GT27 GT25 GT23 | Up to 1 temperature controller for 1 GOT |
| | | | | - | GT15-RS2-9P | GT27 GT25 | |
| | | W-BF-02-0500(0.5m)*1<br>W-BF-02-1000(1m)*1<br>W-BF-02-3000(3m)*1 | 15m | FAX067 | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | RS-422 | User preparing RS-422 connection diagram 1) | 1200m | - | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | GT15-RS4-9S | GT27 GT25 | |

*1 Product manufactured by RKC. For details of the product, contact RKC.

■ When connecting to multiple temperature controllers

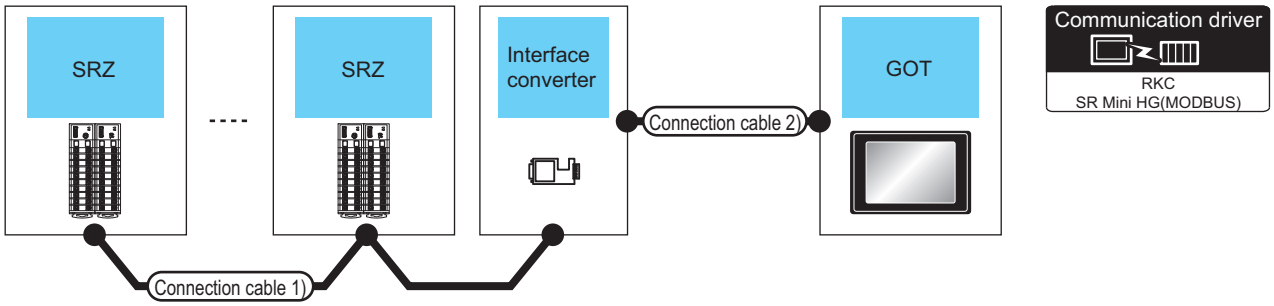



| Temperature controller | | Connection cable 1) | Connection cable 2) | Max. distance | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | Communication Type | Cable model<br>Connection diagram number | Cable model<br>Connection diagram number | | Option device | Model | |
| H-PCP-A<br>H-PCP-B | RS-422 | W-BF-02-0500(0.5m)*1<br>W-BF-02-1000(1m)*1<br>W-BF-02-3000(3m)*1 | User preparing RS-422 connection diagram 1) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | Up to 16 temperature controllers for 1 GOT |
| | | | | | GT15-RS4-9S | GT27 GT25 | |

*1 Product manufactured by RKC. For details of the product, contact RKC.

## 9.2.3 Connecting to SRZ

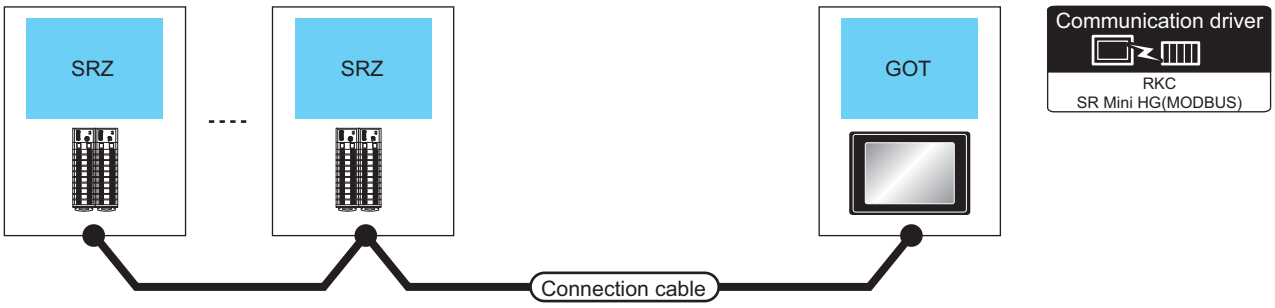
### ■ When connecting to temperature control module (Z-TIO, Z-CT) with a converter




| Temperature controller | Connection cable 1) | | Converter | | Connection cable 2) | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|---|
| Series | Cable model Connection diagram number | Max. distance | Model name | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| SRZ | User preparing RS-485 connection diagram 8) | 1200m | CD485/V*1 | RS-232 | User preparing RS-232 connection diagram 3) | 15m | - (Built into GOT) | GT27 GT25 GT23 | Z-TIO: Up to 16<br>Z-CT: Up to 16<br>Z-DIO: Up to 16<br>Total of Z-TIO, Z-CT and Z-DIO: Up to 31 for 1 GOT |
| | | | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by DATA LINK Co.,Ltd. For details of the product, contact DATA LINK Co.,Ltd.

### ■ When connecting directly to temperature control module (Z-TIO, Z-CT)

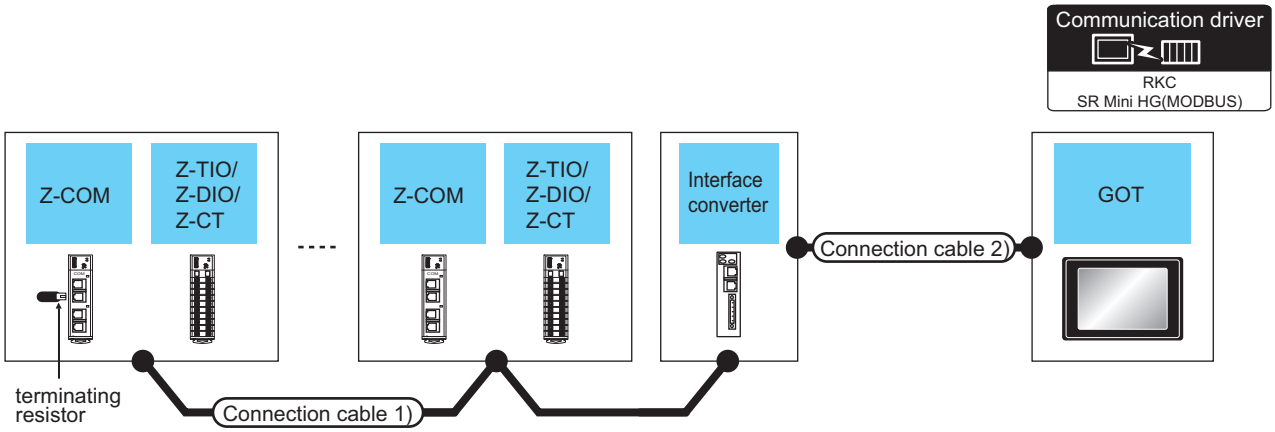



| Temperature controller | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Series | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| SRZ | RS-485 | User preparing RS-485 connection diagram 5) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | Z-TIO: Up to 16<br>Z-CT: Up to 16<br>Z-DIO: Up to 16<br>Total of Z-TIO, Z-CT and Z-DIO: Up to 31 for 1 GOT |
| | | User preparing RS-485 connection diagram 6) | 1200m*1 | FA-LTBGT2R4CBL05(0.5m)*2<br>FA-LTBGT2R4CBL10(1m)*2<br>FA-LTBGT2R4CBL20(2m)*2 | | |
| | | User preparing RS-485 connection diagram 7) | 1200m | GT15-RS4-TE | GT27 GT25 | |

*1 Including the cable length of the option devices.

*2 Product manufactured by MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED. For details of the product, contact MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.

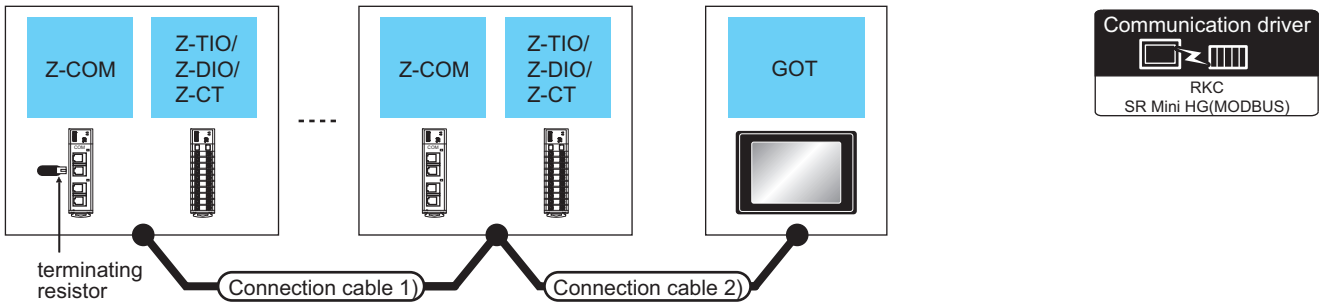
■ When connecting to communication extension module (Z-COM) with a converter




| Z-COM | | Connection cable 1) | | Converter*1 | | Connection cable 2) | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|---|---|
| Model name | Terminating resistor*1 | Cable model Connection diagram number | Max. distance | Model name | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| Z-COM | W-BW-02 | W-BF-02-0500(0.5m)*1<br>W-BF-02-1000(1m)*1<br>W-BF-02-3000(3m)*1<br>or<br>User preparing RS-422 connection diagram 2) | 1200m | COM-A | RS-232 | W-BF-28-0500(0.5m)*1<br>W-BF-28-1000(1m)*1<br>W-BF-28-3000(3m)*1<br>or<br>User preparing RS-232 connection diagram 2) | 15m | - (Built into GOT) | GT27 GT25 GT23 | Up to 16 Z-COMs for 1 GOT<br>Z-TIO: Up to 16<br>Z-CT: Up to 16<br>Z-DIO: Up to 16<br>Total of Z-TIO, Z-CT and Z-DIO: Up to 31 for Z-COM |
| | | | | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by RKC. For details of the product, contact RKC.

## ■ When connecting directly to communication extension module (Z-COM)

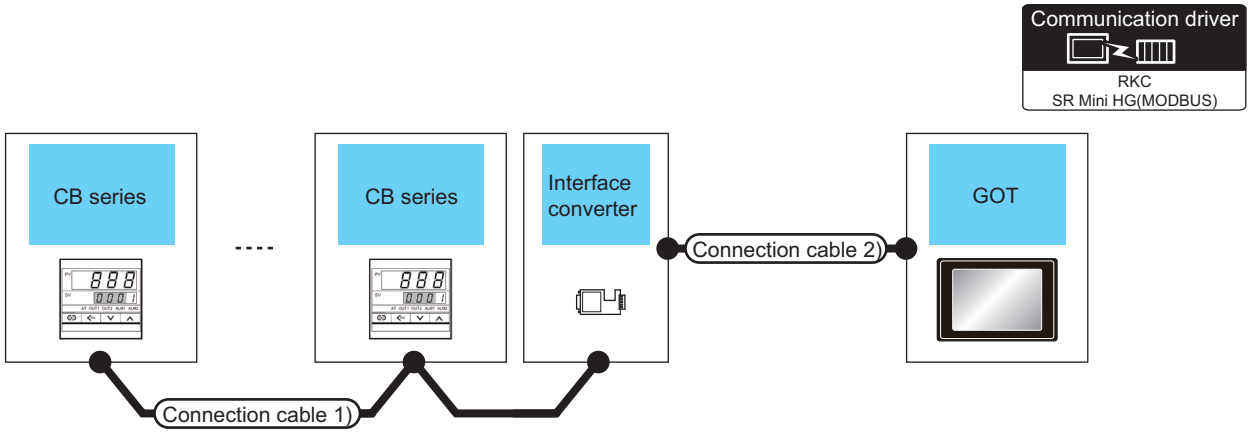



| Z-COM | | | Connection cable 1) | Connection cable 2) | Max. distance | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|
| Model name | Communication Type | Terminating resistor*1 | Cable model Connection diagram number | Cable model Connection diagram number | | Option device | Model | |
| Z-COM | RS-422 | W-BW-02 | W-BF-02-0500(0.5m)*1<br>W-BF-02-1000(1m)*1<br>W-BF-02-3000(3m)*1<br>or<br>User preparing RS-422 connection diagram 2) | User preparing RS-422 connection diagram 1) | 1200m *2 | - (Built into GOT) | GT27 GT25 GT23 | Up to 16 Z-COMs for 1 GOT<br>Z-TIO: Up to 16<br>Z-CT: Up to 16<br>Z-DIO: Up to 16<br>Total of Z-TIO, Z-CT and Z-DIO: Up to 31 for Z-COM |
| | | | | | | GT15-RS4-9S | GT27 GT25 | |
| | RS-485 | W-BW-01 | W-BF-02-0500(0.5m)*1<br>W-BF-02-1000(1m)*1<br>W-BF-02-3000(3m)*1<br>or<br>User preparing RS-485 connection diagram 9) | User preparing RS-485 connection diagram 1) | 1200m *2 | - (Built into GOT) | GT27 GT25 GT23 | Up to 16 Z-COMs for 1 GOT<br>Z-TIO: Up to 16<br>Z-CT: Up to 16<br>Z-DIO: Up to 16<br>Total of Z-TIO, Z-CT and Z-DIO: Up to 31 for Z-COM |
| | | | | User preparing RS-485 connection diagram 3) | 1200m *2 | FA-LTBGT2R4CBL05(0.5m)*4<br>FA-LTBGT2R4CBL10(1m)*4<br>FA-LTBGT2R4CBL20(2m)*4 | GT27 GT25 GT23 | |
| | | | | User preparing RS-485 connection diagram 4) | 1200m *2 | GT15-RS4-TE | GT27 GT25 | |

*1 Product manufactured by RKC. For details of the product, contact RKC.
*2 The total length of the connection cable 1) + connection cable 2)
*3 The total length of the connection cable 1) + connection cable 2) + option device cable
*4 Product manufactured by MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED. For details of the product, contact MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.

## 9.2.4 Connecting to CB Series (CB100, CB400, CB500, CB700, CB900)

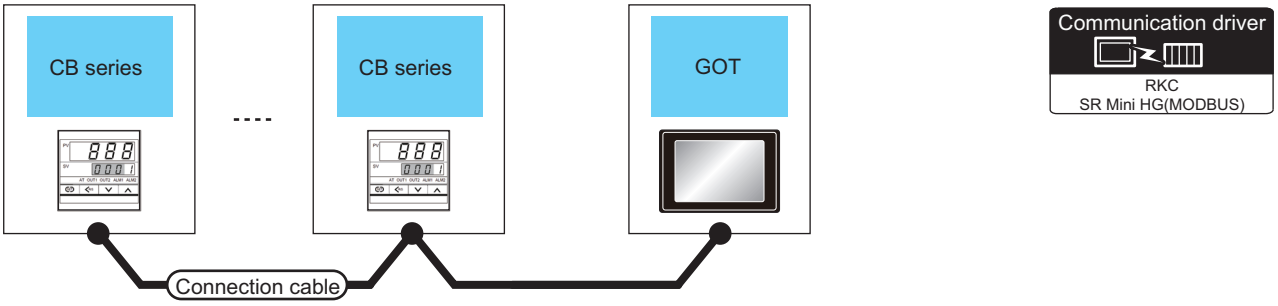
■ When using the converter




| Temperature controller | Connection cable 1) | | Converter | | Connection cable 2) | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|---|
| Series | Cable model Connection diagram number | Max. distance | Model name | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| CB | User preparing RS-485 connection diagram 8) | 1200m | CD485/V*1 | RS-232 | User preparing RS-232 connection diagram 3) | 15m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by DATA LINK Co.,Ltd. For details of the product, contact DATA LINK Co.,Ltd.

## ■ When connecting directly



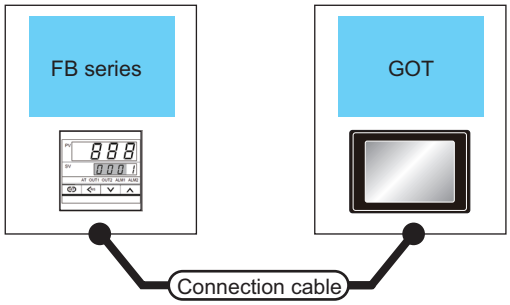

| Temperature controller | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Series | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| CB | RS-485 | User preparing RS-485 connection diagram 5) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | User preparing RS-485 connection diagram 6) | 1200m | FA-LTBGT2R4CBL05(0.5m)*1<br>FA-LTBGT2R4CBL10(1m)*1<br>FA-LTBGT2R4CBL20(2m)*1 | GT27 GT25 GT23 | |
| | | User preparing RS-485 connection diagram 7) | 1200m | GT15-RS4-TE | GT27 GT25 | |

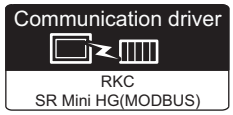
*1 Product manufactured by MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED. For details of the product, contact MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.

*2 Connect it to the RS-232 interface (built into GOT).

## 9.2.5 Connecting to FB series (FB100, FB400 or FB900)

■ When connecting to one temperature controller

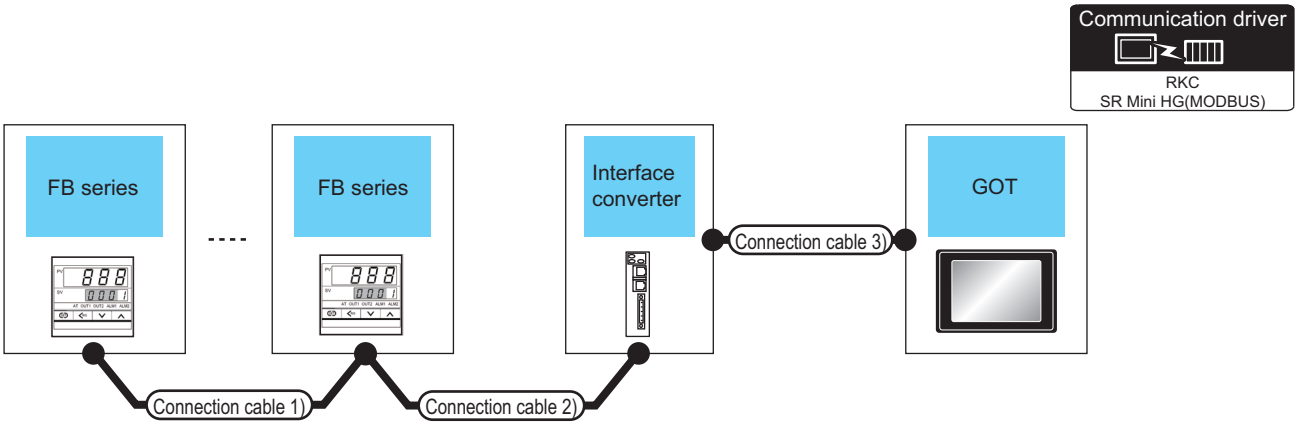



| Temperature controller | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Model name | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| FB400<br>FB900 | RS-232*1 | User preparing RS-232 connection diagram 4) | 15m | - (Built into GOT) | GT27 GT25 GT23 | Up to 1 temperature controller for 1 GOT |
| | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Use communication 1 for the communication format.

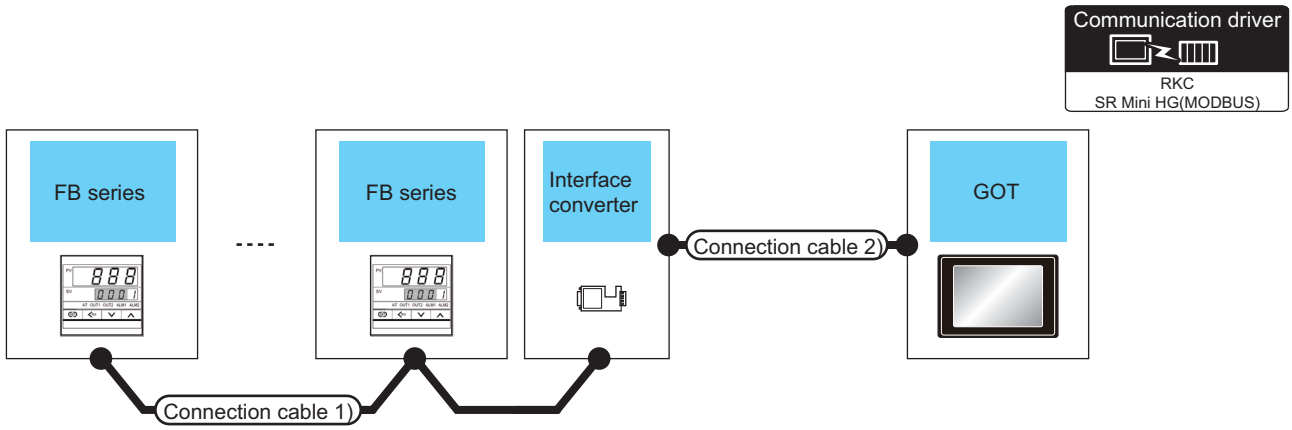
■ When connecting to multiple temperature controllers with interface converter (COM-A)




| Temperature controller | Connection cable 1) | Connection cable 2) | Max. distance | Converter*2 | | Connection cable 3) | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|---|---|
| Model name | Cable model Connection diagram number | Cable model Connection diagram number | | Model name | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| FB400 FB900 | User preparing RS-422 connection diagram 3)*1 | W-BF-01-0500 (0.5m)*2 W-BF-01-1000 (1m)*2 W-BF-01-300 (3m)*2 | 1000m*3 | COM-A | RS-232 | W-BF-28-0500 (0.5m)*2 W-BF-28-1000 (1m)*2 W-BF-28-3000 (3m)*2 or User preparing RS-232 connection diagram 2) | 15m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | | | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Use communication 1 for the communication format.
*2 Product manufactured by RKC. For details of the product, contact RKC.
*3 The total length of the connection cable 1) + connection cable 2)

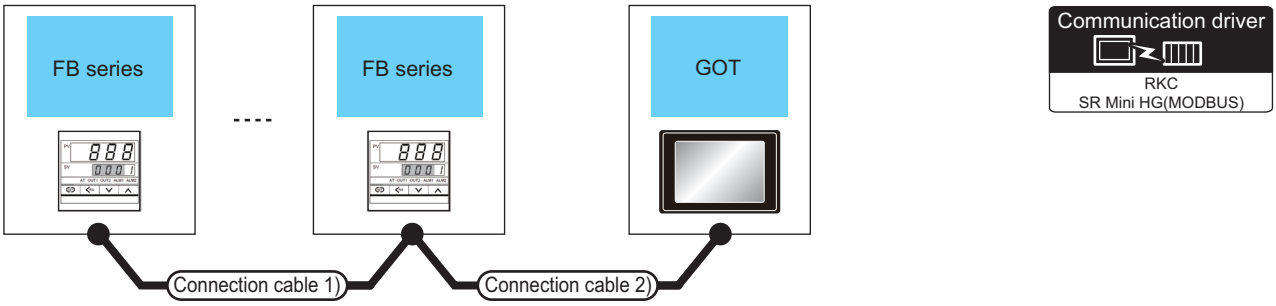
## ■ When connecting to multiple temperature controllers with interface converter (CD485/V)




| Temperature controller | Connection cable 1) | | Converter*1 | | Connection cable 2) | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|---|
| Model name | Cable model Connection diagram number | Max. distance | Model name | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| FB100 FB400 FB900 | User preparing RS-485 connection diagram 8) | 1200m | CD485/V | RS-232 | User preparing RS-232 connection diagram 3) | 15m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by DATA LINK Co.,Ltd. For details of the product, contact DATA LINK Co.,Ltd.

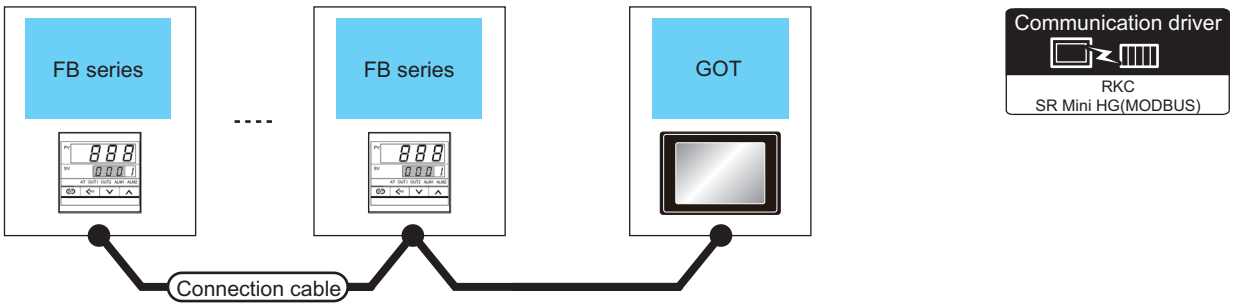
## ■ When connecting directly to a temperature controller by RS-422




| Temperature controller | | Connection cable 1) | Connection cable 2) | Max. distance | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | Communication Type | Cable model Connection diagram number | Cable model Connection diagram number | | Option device | Model | |
| FB400 FB900 | RS-422*1 | User preparing RS-422 connection diagram 3) | User preparing RS-422 connection diagram 4) | 1000m*2 | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | | | | GT15-RS4-9S | GT27 GT25 | |

*1 Use communication 1 for the communication format.
*2 The total length of the connection cable 1) + connection cable 2)

■ When connecting directly to a temperature controller by RS-485

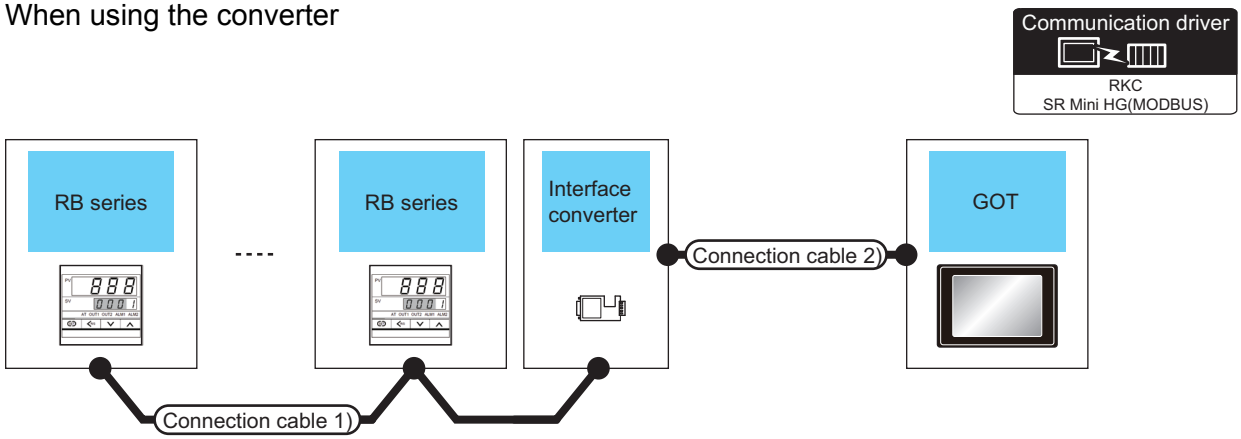



| Temperature controller | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Model name | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| FB100<br>FB400<br>FB900 | RS-485 | User preparing RS-485 connection diagram 5) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | User preparing RS-485 connection diagram 6) | 1200m | FA-LTBGT2R4CBL05(0.5m)*1<br>FA-LTBGT2R4CBL10(1m)*1<br>FA-LTBGT2R4CBL20(2m)*1 | GT27 GT25 GT23 | |
| | | User preparing RS-485 connection diagram 7) | 1200m | GT15-RS4-TE | GT27 GT25 | |

*1 Product manufactured by MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED. For details of the product, contact MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.

## 9.2.6 Connecting to RB Series (RB100, RB400, RB500, RB700, RB900)

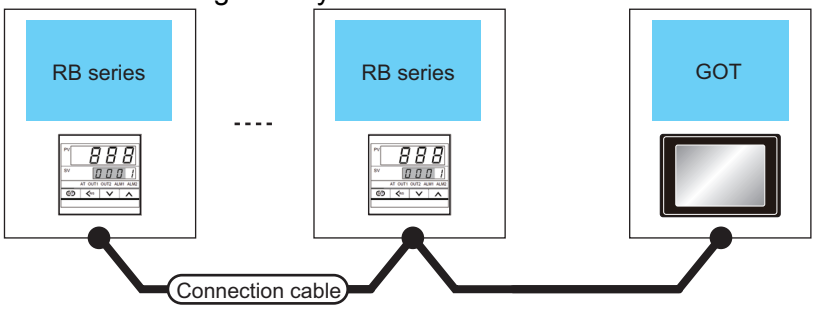
■ When using the converter




| Temperature controller | Connection cable 1) | | Converter*1 | | Connection cable 2) | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|---|
| Model name | Cable model Connection diagram number | Max. distance | Model name | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| RB100<br>RB400<br>RB500<br>RB700<br>RB900 | User preparing RS-485 connection diagram 8) | 1200m | CD485/V | RS-232 | User preparing RS-232 connection diagram 3) | 15m | -<br>(Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by DATA LINK Co.,Ltd. For details of the product, contact DATA LINK Co.,Ltd.

■ When connecting directly

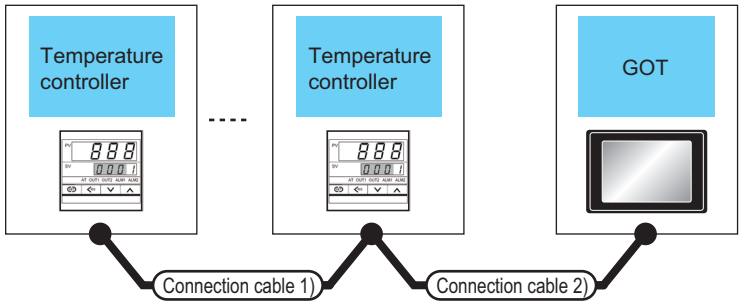



| Temperature controller | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Model name | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| RB100<br>RB400<br>RB500<br>RB700<br>RB900 | RS-485 | User preparing RS-485 connection diagram 5) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | User preparing RS-485 connection diagram 6) | 1200m | FA-LTBGT2R4CBL05(0.5m)*1<br>FA-LTBGT2R4CBL10(1m)*1<br>FA-LTBGT2R4CBL20(2m)*1 | GT27 GT25 GT23 | |
| | | User preparing RS-485 connection diagram 7) | 1200m | GT15-RS4-TE | GT27 GT25 | |

*1 Product manufactured by MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED. For details of the product, contact MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.

## 9.2.7 Connection to PF900/901, HA400/401, HA900/901, RMC500, MA900/901, AG500, SA100/200

■ When connecting to multiple temperature controllers

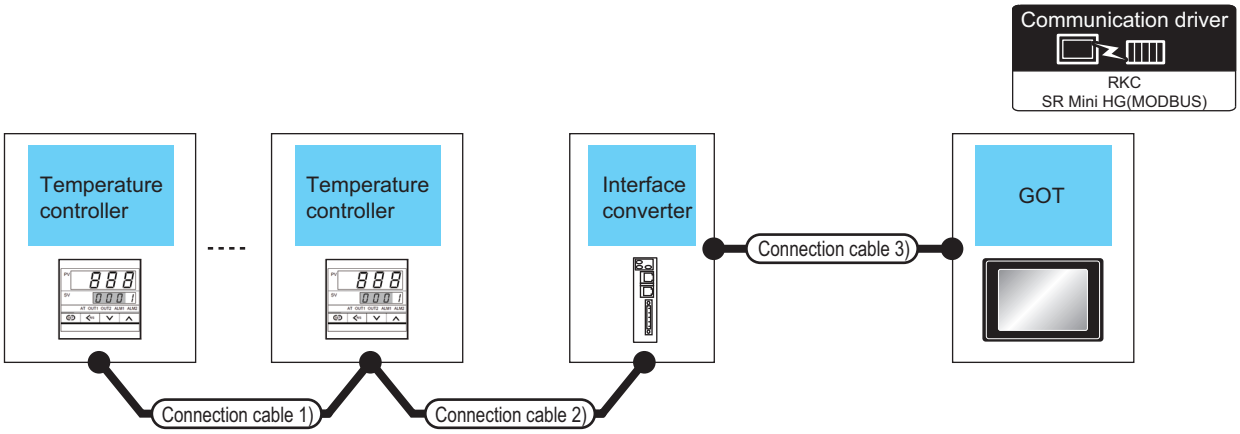



Communication driver
RKC
SR Mini HG(MODBUS)

| Temperature controller | | Connection cable 1) | Connection cable 2) | Max. distance | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | Communication Type | Cable model Connection diagram number | Cable model Connection diagram number | | Option device | Model | |
| PF900 PF901 HA400 HA401 HA900 HA901 MA900 MA901 | RS-232 | - | User preparing RS-232 connection diagram 4) | 15m | - (Built into GOT) | GT27 GT25 GT23 | Up to 1 temperature controller for 1 GOT |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| PF900 PF901 HA400 HA401 HA900 HA901 MA900 MA901 AG500 | RS-422 | User preparing RS-422 connection diagram 3) | User preparing RS-422 connection diagram 4) | 1000m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT*3 |
| | | | | | GT15-RS4-9S | GT27 GT25 | |
| PF900 PF901 HA400 HA401 HA900 HA901 MA900 MA901 AG500 RMC500 SA100 SA200 | RS-485 | User preparing RS-485 connection diagram 5) | | 1200m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | User preparing RS-485 connection diagram 6) | | 1200m | FA-LTBGT2R4CBL05 (0.5m)*1 FA-LTBGT2R4CBL10 (1m)*1 FA-LTBGT2R4CBL20 (2m)*1 | GT27 GT25 GT23 | |
| | | User preparing RS-485 connection diagram 7) | | 1200m | GT15-RS4-TE | GT27 GT25 | |

*1 Product manufactured by MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED. For details of the product, contact MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.

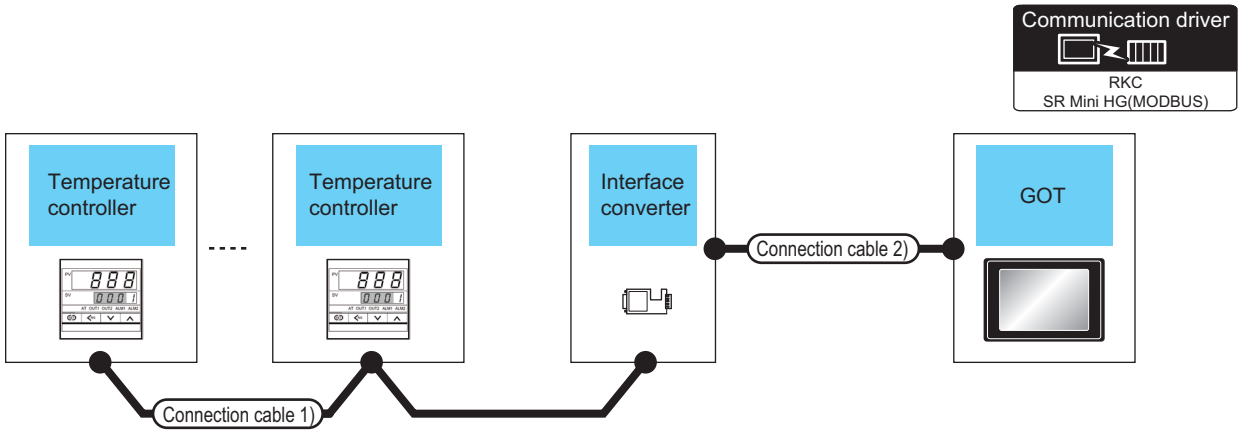
## ■ When connecting to multiple temperature controllers with interface converter (COM-A)




| Temperature controller | Connection cable 1) | Connection cable 2) | Max. distance | Interface converter*1 | | Connection cable 3) | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|---|---|
| Model name | Cable model Connection diagram number | Cable model*1 Connection diagram number | | Model name | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| PF900 PF901 | User preparing RS-422 connection diagram 3) | W-BF-01-0500 (0.5m) W-BF-01-1000 (1m) W-BF-01-3000 (3m) | 1000m | COM-A | RS-232 | W-BF-28-0500 (0.5m)*1 W-BF-28-1000 (1m)*1 W-BF-28-3000 (3m)*1 or User preparing RS-232 connection diagram 2) | 15m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | | | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by RKC. For details of the product, contact RKC.

■ When connecting to multiple temperature controllers with interface converter (CD485/V)

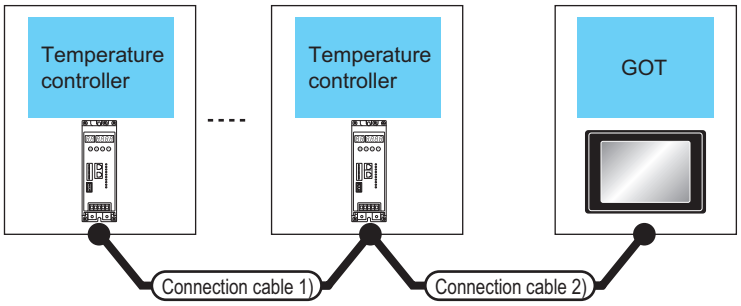


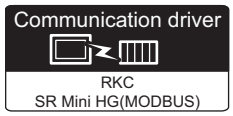

| Temperature controller | Connection cable 1) | Max. distance | Interface converter*1 | | Connection cable 2) | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|---|
| Model name | Cable model*1 Connection diagram number | | Model name | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| PF900<br>PF901<br>HA400<br>HA401<br>HA900<br>HA901<br>RMC500<br>SA100<br>SA200 | User preparing RS-485 connection diagram 8) | 1200m | CD485/V | RS-232 | User preparing RS-232 connection diagram 3) | 15m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by RKC. For details of the product, contact RKC.

## 9.2.8 Connection to THV-A1

■ When connecting to multiple temperature controllers



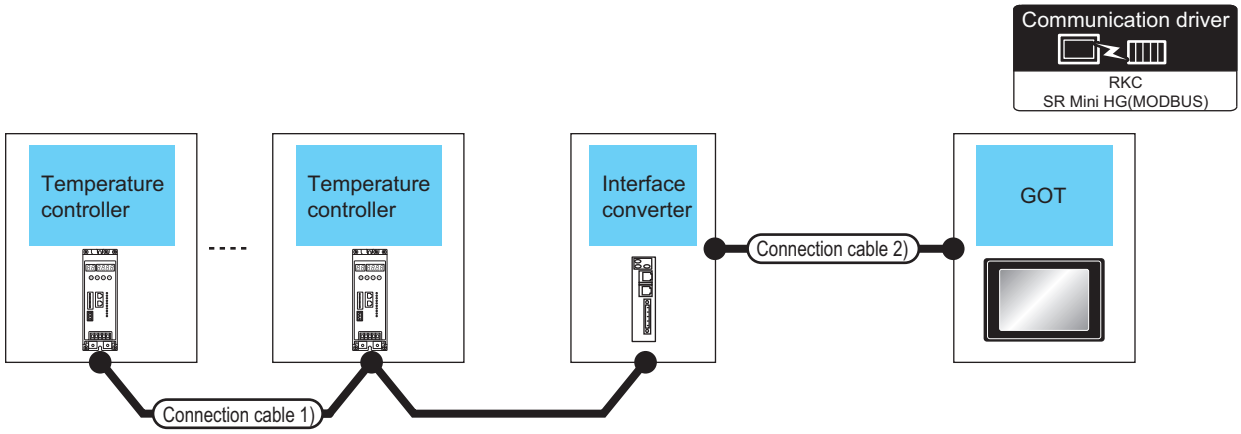




| Temperature controller | | Connection cable 1) | Connection cable 2) | Max. distance | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | Commu-nication Type | Cable model*1 Connection diagram number | Cable model Connection diagram number | | Option device | Model | |
| THV-A1 | RS-422 | W-BF-02-0500 (0.5m)<br>W-BF-02-1000 (1m)<br>W-BF-02-3000 (3m) | User preparing RS-422 connection diagram 1) | 1000m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | | | | GT15-RS4-9S | GT27 GT25 | |
| | RS-485 | W-BF-02-0500 (0.5m)<br>W-BF-02-1000 (1m)<br>W-BF-02-3000 (3m) | User preparing RS-485 connection diagram 1) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | | User preparing RS-485 connection diagram 3) | | FA-LTBGT2R4CBL05 (0.5m)*2<br>FA-LTBGT2R4CBL10 (1m)*2<br>FA-LTBGT2R4CBL20 (2m)*2 | GT27 GT25 GT23 | |
| | | | W-BF-01-0500 (0.5m)*1<br>W-BF-01-1000 (1m)*1<br>W-BF-01-3000 (3m)*1<br>or<br>User preparing RS-485 connection diagram 4) | | GT15-RS4-TE | GT27 GT25 | |

*1 Product manufactured by RKC. For details of the product, contact RKC.

*2 Product manufactured by MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED. For details of the product, contact MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.

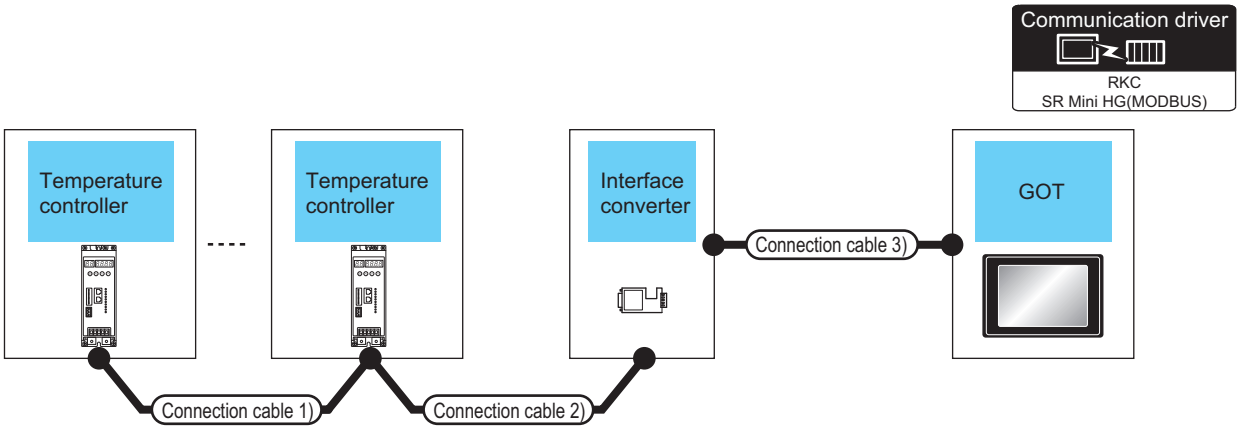
■ When connecting to multiple temperature controllers with interface converter (COM-A)




| Temperature controller | Connection cable 1) | Max. distance | Interface converter*1 | | Connection cable 2) | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|---|
| Model name | Cable model*1 Connection diagram number | | Model name | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| THV-A1 | W-BF-02-0500 (0.5m)<br>W-BF-02-1000 (1m)<br>W-BF-02-3000 (3m) | 1000m | COM-A | RS-232 | W-BF-28-0500 (0.5m)*1<br>W-BF-28-1000 (1m)*1<br>W-BF-28-3000 (3m)*1<br>or<br>User preparing RS-232 connection diagram 2) | 15m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by RKC. For details of the product, contact RKC.

## ■ When connecting to multiple temperature controllers with interface converter (CD485V)

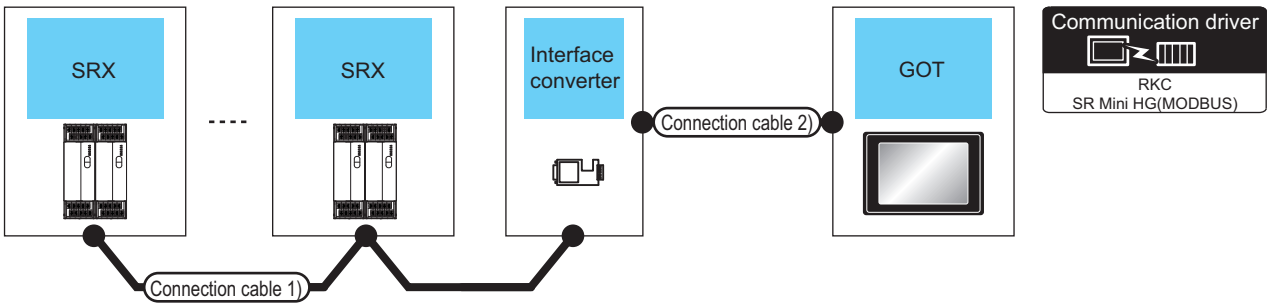



| Temperature controller | Connection cable 1) | Connection cable 2) | Max. distance | Interface converter*1 | | Connection cable 3) | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|---|---|
| Model name | Cable model Connection diagram number | Cable model Connection diagram number | | Model name | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| THV-A1 | W-BF-02-0500 (0.5m)*1<br>W-BF-02-1000 (1m)*1<br>W-BF-02-3000 (3m)*1 | User preparing RS-485 connection diagram 8) | 1200m | CD485/V | RS-232 | User preparing RS-232 connection diagram 3) | 15m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | | | | | | | GT15-RS2-9P | GT27 GT25 | |
| | User preparing RS-485 connection diagram 8) | | 1200m | CD485/V | RS-232 | User preparing RS-232 connection diagram 3) | 15m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by RKC. For details of the product, contact RKC.

## 9.2.9 Connection to SRX

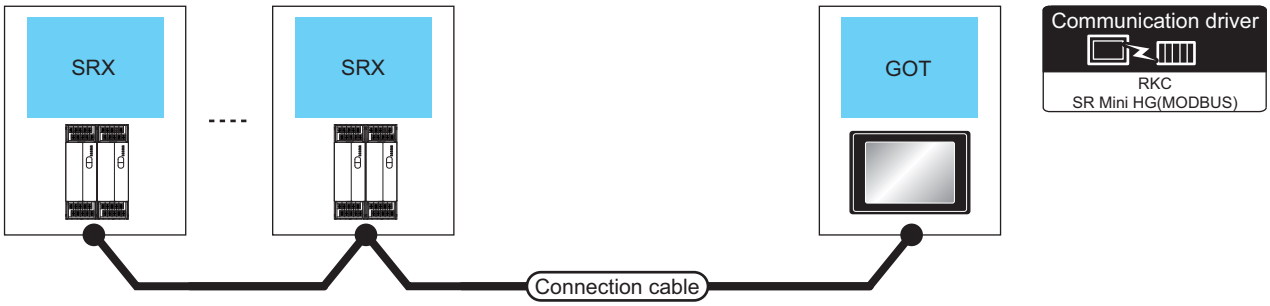
■ When connecting to temperature control module (X-TIO) with a converter




| Temperature controller | Connection cable 1) | | Interface Converter | | Connection cable 2) | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|---|
| Series | Cable model Connection diagram number | Max. distance | Model name | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| SRX | User preparing RS-485 connection diagram 8) | 1200m | CD485/V*1 | RS-232 | User preparing RS-232 connection diagram 3) | 15m | - (Built into GOT) | GT27 GT25 GT23 | X-TIO: Up to 31<br>Total of X-TIO, X-DI and X-DO: Up to 31 for 1 GOT |
| | | | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by DATA LINK Co.,Ltd. For details of the product, contact DATA LINK Co.,Ltd.

■ When connecting directly to temperature control module (X-TIO)



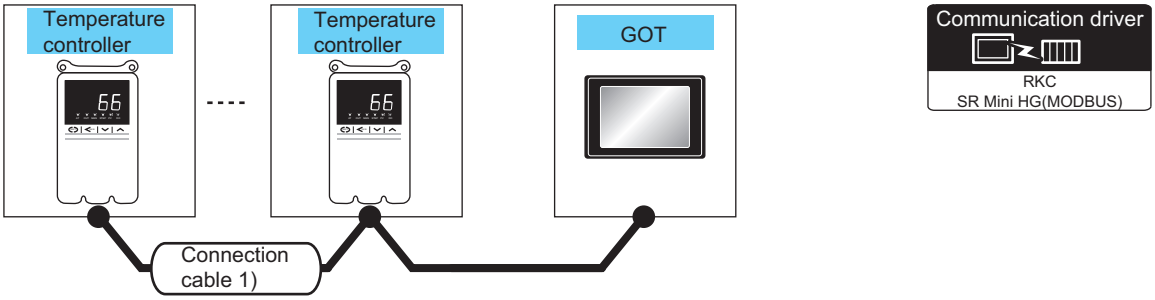

| Temperature controller | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Series | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| SRX | RS-485 | User preparing RS-485 connection diagram 5) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | X-TIO: Up to 31<br>Total of X-TIO, X-DI and X-DO: Up to 31 for 1 GOT |
| | | User preparing RS-485 connection diagram 6) | 1200m*1 | FA-LTBGT2R4CBL05 (0.5m)*2<br>FA-LTBGT2R4CBL10 (1m)*2<br>FA-LTBGT2R4CBL20 (2m)*2 | | |
| | | User preparing RS-485 connection diagram 7) | 1200m | GT15-RS4-TE | GT27 GT25 | |

*1 Including the cable length of the option devices.

*2 Product manufactured by MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED. For details of the product, contact MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.

## 9.2.10 Connecting to SB1

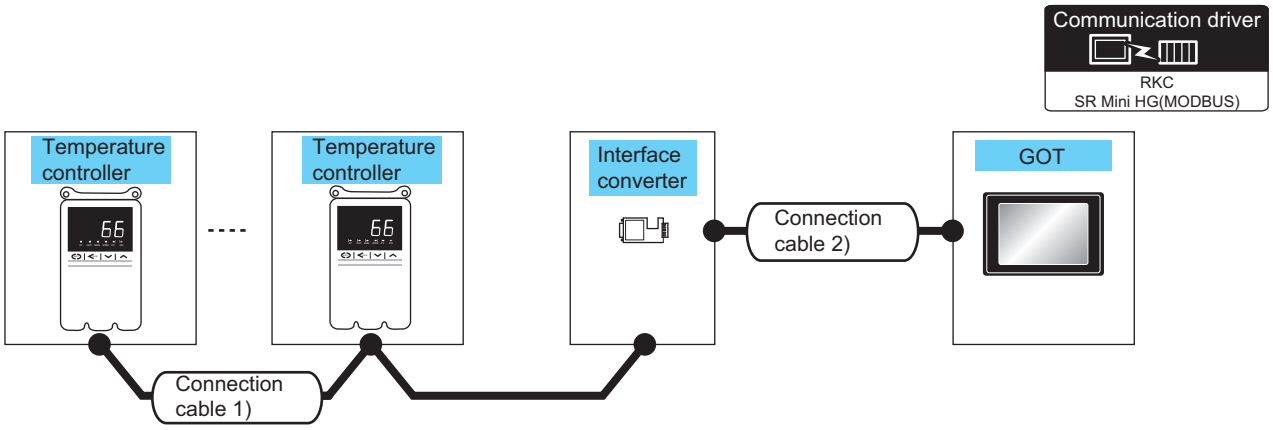
■ When connecting to multiple temperature controllers




| Temperature controller | | Connection cable 1) | Max. distance | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Model name | Communication Type | Cable model<br>Connection diagram number | | Option device | Model | |
| SB1 | RS-485 | User preparing RS-485 connection diagram 5) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | User preparing RS-485 connection diagram 6) | 1200m | FA-LTBGT2R4CBL05 (0.5m)*1<br>FA-LTBGT2R4CBL10 (1m)*1<br>FA-LTBGT2R4CBL20 (2m)*1 | GT27 GT25 GT23 | |
| | | User preparing RS-485 connection diagram 7) | 1200m | GT15-RS4-TE | GT27 GT25 | |

*1 Product manufactured by MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED. For details of the product, contact MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.

■ When connecting to multiple temperature controllers with interface converter (CD485V)

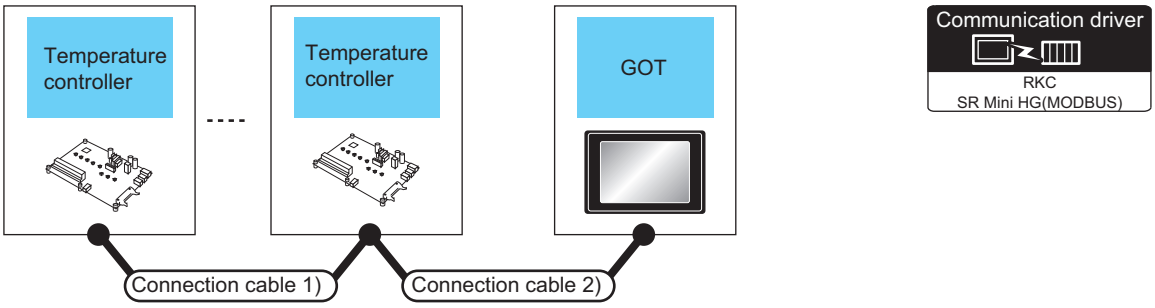



| Temperature controller | Connection cable 1) | | Converter*1 | | Connection cable 2) | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|---|
| Model name | Cable model Connection diagram number*1 | Max. distance | Model name | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| SB1 | User preparing RS-485 connection diagram 8) | 1200m | CD485/V*2 | RS-232 | User preparing RS-232 connection diagram 3) | 15m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by RKC. For details of the product, contact RKC.

*2 Product manufactured by DATA LINK Co.,Ltd. For details of the product, contact DATA LINK Co.,Ltd.

## 9.2.11 Connecting to B400




| Temperature controller | | Connection cable 1) | Connection cable 2) | Max. distance | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | Communication Type | Cable model Connection diagram number | Cable model Connection diagram number | | Option device | Model | |
| B400 (RS-422 specifications) | RS-422 | User preparing RS-422 connection diagram 3) | User preparing RS-422 connection diagram 4) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | | | | GT15-RS4-9S | GT27 GT25 | |
| B400 (RS-485 specifications) | RS-485 | User preparing RS-485 connection diagram 5) | | 1200m | - (Built into GOT) | GT27 GT25 GT23 | Up to 31 temperature controllers for 1 GOT |
| | | User preparing RS-485 connection diagram 6) | | 1200m | FA-LTBGT2R4CBL05 (0.5m)*1<br>FA-LTBGT2R4CBL10 (1m)*1<br>FA-LTBGT2R4CBL20 (2m)*1 | GT27 GT25 GT23 | |
| | | User preparing RS-485 connection diagram 7) | | 1200m | GT15-RS4-TE | GT27 GT25 | |

*1 Product manufactured by MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED. For details of the product, contact MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.

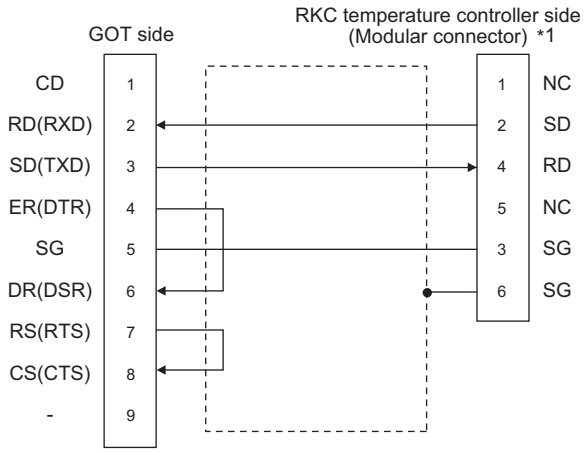
# 9.3 Connection Diagram

The following diagram shows the connection between the GOT and the temperature controller.

## 9.3.1 RS-232 cable

### ■ Connection diagram

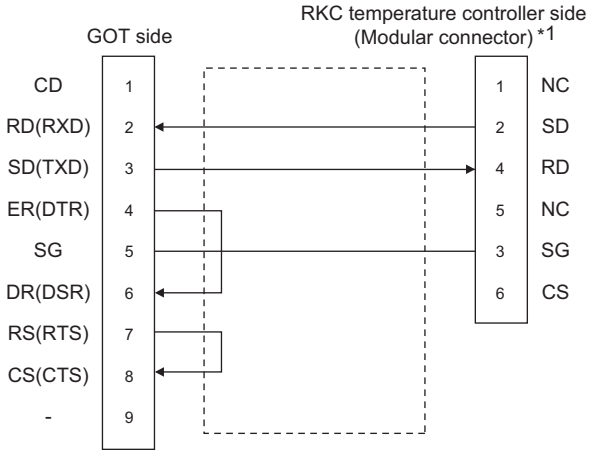
(1) RS-232 connection diagram 1)




*1 For details of the pin assignment, refer to the following manual.

☞ User's Manual of the RKC temperature controller

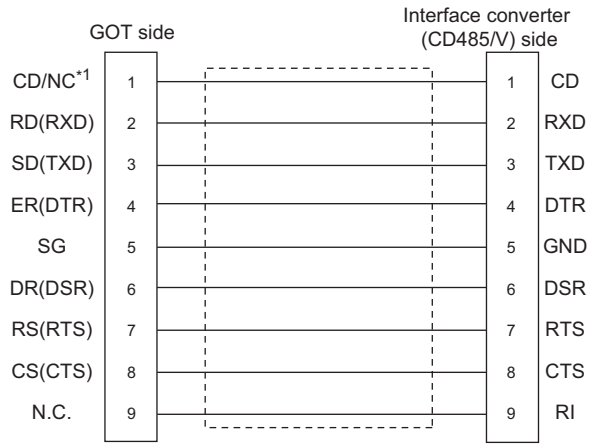
(2) RS-232 connection diagram 2)




*1 For details of the pin assignment, refer to the following manual.

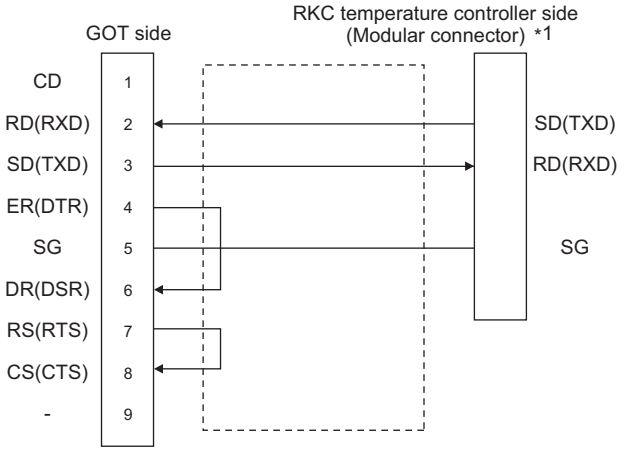
☞ User's Manual of the RKC temperature controller

(3) RS-232 connection diagram 3)




*1 GT16: CD, GT15: CD, GT14: NC, GT12: NC, GT11: NC

(4) RS-232 connection diagram 4)




*1 For the terminal number of the temperature controller, refer to the following table.

| Signal name | Terminal No. | | | | |
|---|---|---|---|---|---|
| | FB400 FB900 | PF900 PF901 | HA400/401 HA900/901 | | MA900 MA901 |
| | | | Communication 1 | Communication 2 | |
| SG | 25 | 25 | 13 | 25 | 44 |
| SD(TXD) | 26 | 26 | 14 | 26 | 45 |
| RD(RXD) | 27 | 27 | 15 | 27 | 46 |

### ■ Precautions when preparing a cable

(5) Cable length
The length of the RS-232 cable must be 15m or less.

(6) GOT side connector
For the GOT side connector, refer to the following.

☞ 1.4.1 GOT connector specifications

(7) RKC temperature controller side connector
Use the connector compatible with the RKC temperature controller side module.
For details, refer to user's manual of the RKC temperature controller side.

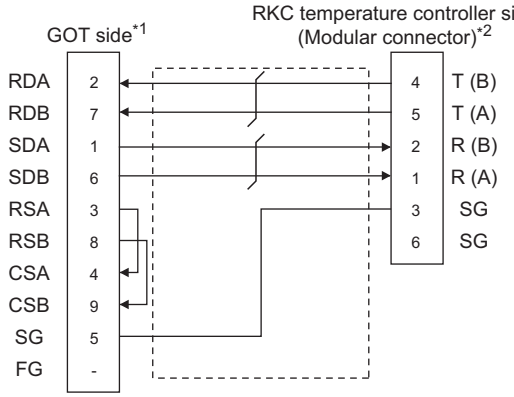
**POINT**

Differences in polarity between GOT and RKC temperature controllers

The polarity of poles A and B in signal names is reversed between GOT and RKC temperature controllers.
Connect a cable according to the following connection diagrams.

## ■ Connection diagram

### (1) RS-422 connection diagram 1)



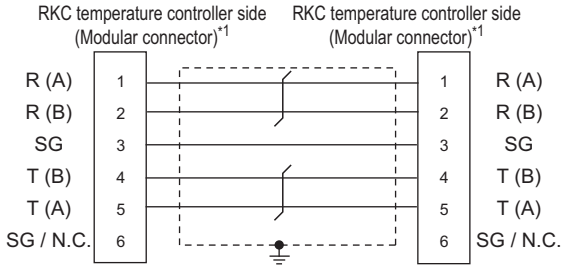

*1 Set the terminating resistor setting switch of the GOT main unit to "Disable".

■ Connecting terminating resistors

*2 For details of the pin assignment, refer to the following manual.

User's Manual of the RKC temperature controller

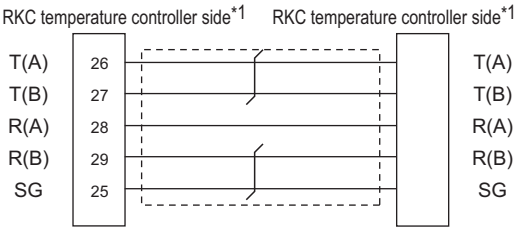
### (2) RS-422 connection diagram 2)




*1 For details of the pin assignment, refer to the following manual.

User's Manual of the RKC temperature controller

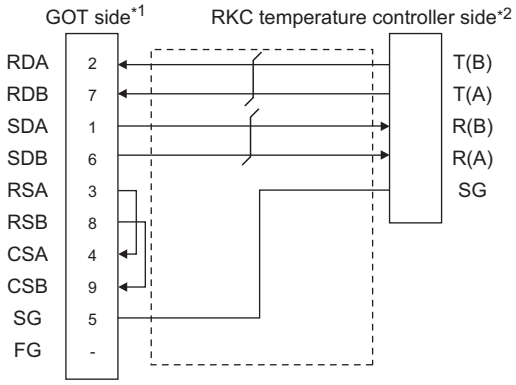
### (3) RS-422 connection diagram 3)




*1 For the terminal number of the temperature controller, refer to the following table

| Signal name | Terminal No. | | | |
|---|---|---|---|---|
| | FB400 FB900 | PF900/901 AG500 HA400/401 HA900/901 | MA900 MA901 | B400 (RS-422 specifications) |
| SG | 25 | 25 | 44 | 3/6 |
| T(A) | 26 | 26 | 45 | 5 |
| T(B) | 27 | 27 | 46 | 4 |
| R(A) | 28 | 28 | 47 | 1 |
| R(B) | 29 | 29 | 48 | 2 |

### (4) RS-422 connection diagram 4)



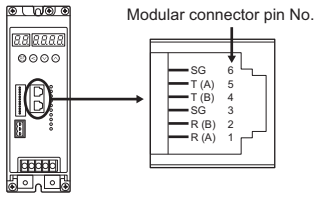

*1 Set the terminating resistor setting switch of the GOT main unit to "100 OHM".

■ Connecting terminating resistors

*2 For the terminal number of the temperature controller, refer to the following table

| Signal name | Terminal No. | | | | |
|---|---|---|---|---|---|
| | FB400 FB900 | PF900/901 AG500 HA400/401 HA900/901 | MA900 MA901 | THV-A1*3 | B400 (RS-422 specifications) |
| SG | 25 | 25 | 44 | 3 | 3/6 |
| T(A) | 26 | 26 | 45 | 5 | 5 |
| T(B) | 27 | 27 | 46 | 4 | 4 |
| R(A) | 28 | 28 | 47 | 1 | 1 |
| R(B) | 29 | 29 | 48 | 2 | 2 |

*3 The following shows the pin assignment of the modular connector.



## ■ Precautions when preparing a cable

(5) Cable length
The length of the RS-422 cable must be within the maximum distance.

(6) GOT side connector
For the GOT side connector, refer to the following.

☞ 1.4.1 GOT connector specifications

(7) RKC temperature controller side connector
Use the connector compatible with the RKC temperature controller side module.
For details, refer to user's manual of the RKC temperature controller.

## ■ Connecting terminating resistors

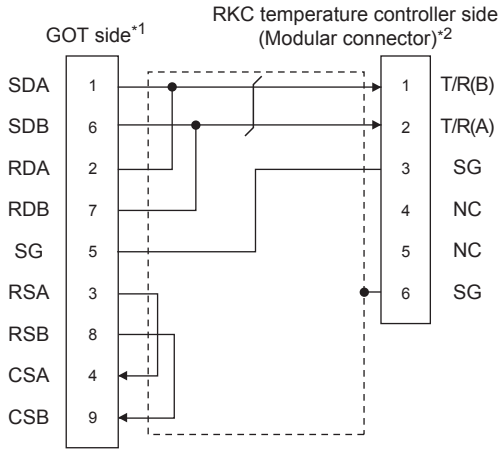
(1) GOT side
Set the terminating resistor by operating the terminating resistor setting switch.
For the procedure to set the terminating resistor, refer to the following.

☞ 1.4.3 Terminating resistors of GOT

## 9.3.3 RS-485 cable

### ■ Connection diagram

(1) RS-485 connection diagram 1)



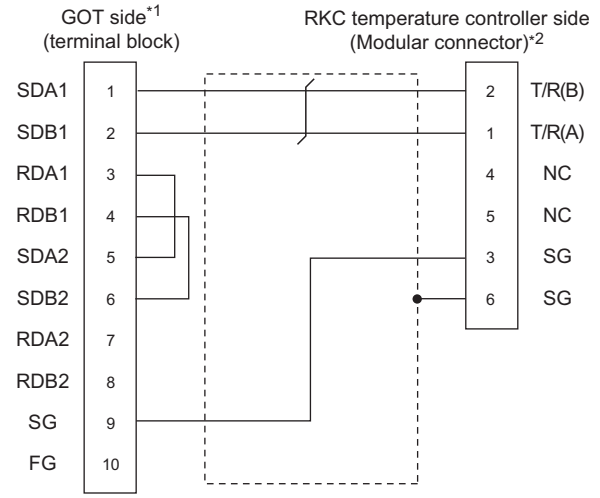

*1 Set the terminating resistor setting switch of the GOT main unit to "100 OHM".

■ Connecting terminating resistors

*2 For details of the pin assignment, refer to the following manual.

User's Manual of the RKC temperature controller

(2) RS-485 connection diagram 2)



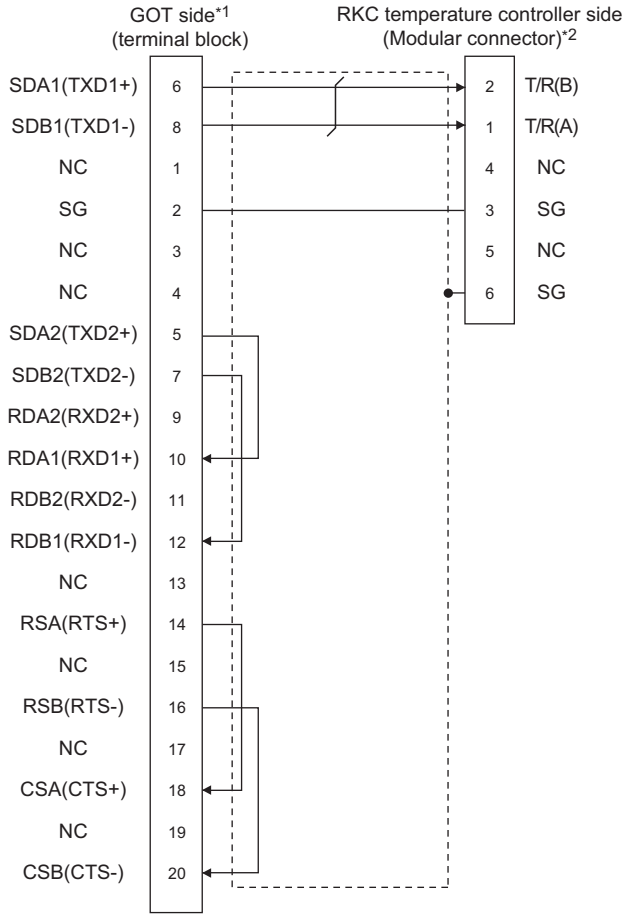

*1 Set the terminating resistor setting switch of the GOT main unit to "100 OHM".

■ Connecting terminating resistors

*2 For details of the pin assignment, refer to the following manual.

User's Manual of the RKC temperature controller

(3) RS-485 connection diagram 3)



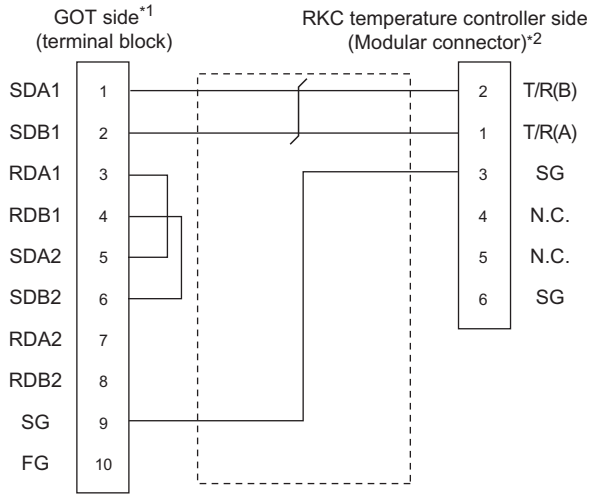

*1 Set the terminating resistor setting switch of the GOT main unit to "100 OHM".

■ Connecting terminating resistors

*2 For details of the pin assignment, refer to the following manual.

User's Manual of the RKC temperature controller

(4) RS-485 connection diagram 4)



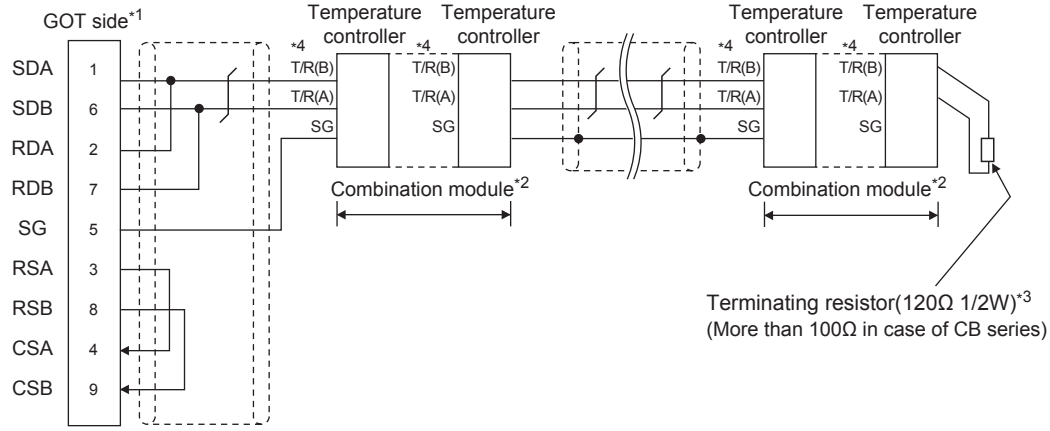

*1 Set the terminating resistor setting switch of the GOT main unit to "100 OHM".

■ Connecting terminating resistors

*2 For details of the pin assignment, refer to the following manual.

User's Manual of the RKC temperature controller

(5) RS-485 connection diagram 5)




*1 Set the terminating resistor setting switch of the GOT main unit to "100 OHM". ☞ ■ Connecting terminating resistors

*2 When combining the module, because the communication line is connected between the modules with each other, wire only the communication terminal on the both end of the combination module.

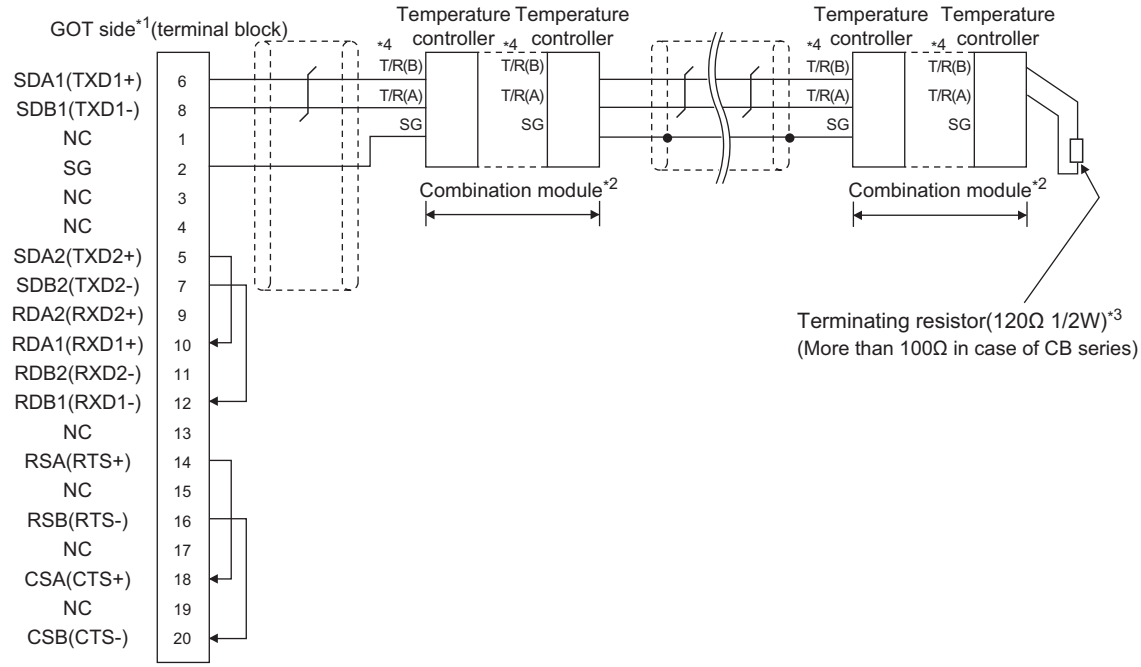
*3 Terminating resistor should be provided for a temperature controller which will be a terminal. When using X-TIO, turn ON the terminating resistor selector in the terminal base. When combining the module, provide the terminating resistor to the end of the combination module (the one that is far from the converter).

*4 For the terminal number of the temperature controller, refer to the following table.

| Signal name | Terminal No. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Z-TIO/ Z-CT | CB100/CB400 /CB500/CB900 | CB700 | FB100 | | FB400/FB90 | | RB100/RB400 /RB500/RB900 | RB700 |
| | | | | Communication 1 | Communication 2 | Communication 1 | Communication 2 | | |
| SG | 5 | 13 | 7 | 13 | 16 | 25 | 25 | 13 | 25 |
| T/R(A) | 3 | 14 | 8 | 14 | 17 | 26 | 28 | 14 | 26 |
| T/R(B) | 4 | 15 | 9 | 15 | 18 | 27 | 29 | 15 | 27 |

| Signal name | Terminal No. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | PF900 PF901 AG500 | HA400/401 HA900/901 | | MA900/MA901 | RMC500 | X-TIO | SA100 | SA200 | SB1 | B400 (RS-485 specifications) |
| | | Communication 1 | Communication 2 | | | | | | | |
| SG | 25 | 13 | 25 | 44 | 13 | 17 | 1 | 10 | 1 | 3/6 |
| T/R(A) | 26 | 14 | 26 | 45 | 14 | 16 | 2 | 11 | 2 | 1/5 |
| T/R(B) | 27 | 15 | 27 | 46 | 15 | 15 | 3 | 12 | 3 | 2/4 |

(6) RS-485 connection diagram 6)




*1 Set the terminating resistor setting switch of the GOT main unit to "100 OHM". ■ Connecting terminating resistors

*2 When combining the module, because the communication line is connected between the modules with each other, wire only the communication terminal on the both end of the combination module.

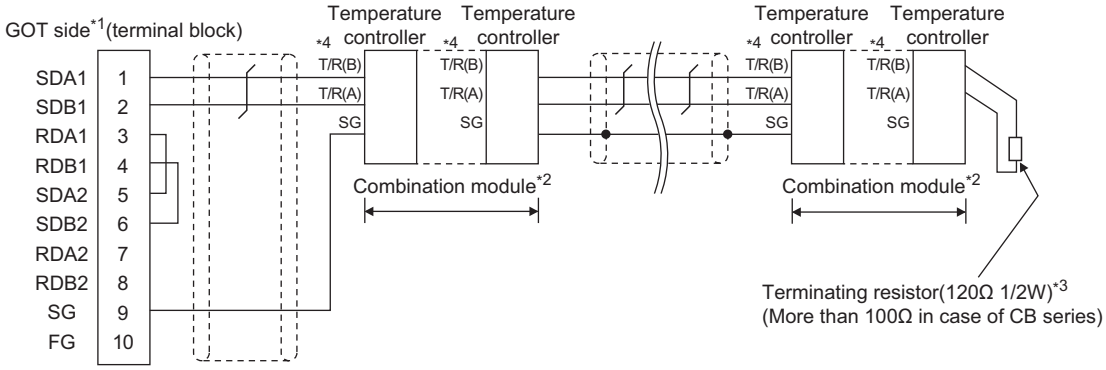
*3 Terminating resistor should be provided for a temperature controller which will be a terminal. When using X-TIO, turn ON the terminating resistor selector in the terminal base. When combining the module, provide the terminating resistor to the end of the combination module (the one that is far from the converter).

*4 For the terminal number of the temperature controller, refer to the following table.

| Signal name | Terminal No. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Z-TIO/ Z-CT | CB100/CB400 /CB500/CB900 | CB700 | FB100 | | FB400/FB90 | | RB100/RB400 /RB500/RB900 | RB700 |
| | | | | Communication 1 | Communication 2 | Communication 1 | Communication 2 | | |
| SG | 5 | 13 | 7 | 13 | 16 | 25 | 25 | 13 | 25 |
| T/R(A) | 3 | 14 | 8 | 14 | 17 | 26 | 28 | 14 | 26 |
| T/R(B) | 4 | 15 | 9 | 15 | 18 | 27 | 29 | 15 | 27 |

| Signal name | Terminal No. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | PF900 PF901 AG500 | HA400/401 HA900/901 | | MA900/ MA901 | RMC500 | X-TIO | SA100 | SA200 | SB1 | B400 (RS-485 specifications) |
| | | Communication 1 | Communication 2 | | | | | | | |
| SG | 25 | 13 | 25 | 44 | 13 | 17 | 1 | 10 | 1 | 3/6 |
| T/R(A) | 26 | 14 | 26 | 45 | 14 | 16 | 2 | 11 | 2 | 1/5 |
| T/R(B) | 27 | 15 | 27 | 46 | 15 | 15 | 3 | 12 | 3 | 2/4 |

(7) RS-485 connection diagram 7)




*1 Set the terminating resistor setting switch of the GOT main unit to "100 OHM".

■ Connecting terminating resistors

*2 When combining the module, because the communication line is connected between the modules with each other, wire only the communication terminal on the both end of the combination module.

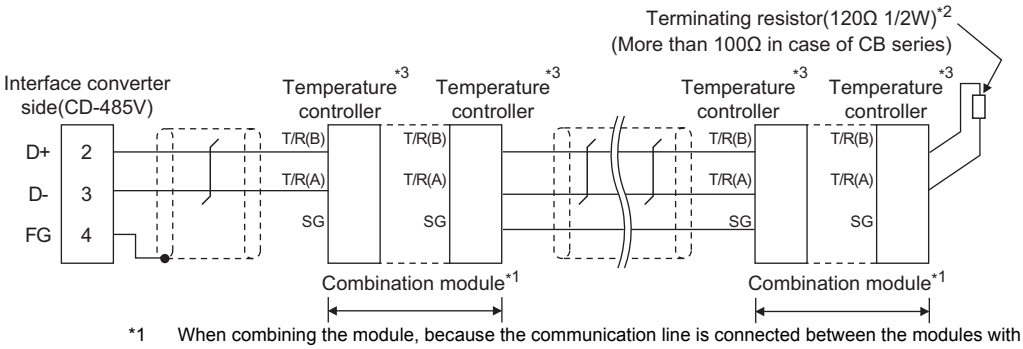
*3 Terminating resistor should be provided for a temperature controller which will be a terminal. When using X-TIO, turn ON the terminating resistor selector in the terminal base. When combining the module, provide the terminating resistor to the end of the combination module (the one that is far from the converter).

*4 For the terminal number for connecting to FB series or RB series, refer to the table below.

| Signal name | Terminal No. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Z-TIO/ Z-CT | CB100/CB400 /CB500/CB900 | CB700 | FB100 | | FB400/FB90 | | RB100/RB400 /RB500/RB900 | RB700 |
| | | | | Communication 1 | Communication 2 | Communication 1 | Communication 2 | | |
| SG | 5 | 13 | 7 | 13 | 16 | 25 | 25 | 13 | 25 |
| T/R(A) | 3 | 14 | 8 | 14 | 17 | 26 | 28 | 14 | 26 |
| T/R(B) | 4 | 15 | 9 | 15 | 18 | 27 | 29 | 15 | 27 |

| Signal name | Terminal No. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | PF900 PF901 AG500 | HA400/401 HA900/901 | | MA900/ MA901 | RMC500 | X-TIO | SA100 | SA200 | SB1 | B400 (RS-485 specifications) |
| | | Communication 1 | Communication 2 | | | | | | | |
| SG | 25 | 13 | 25 | 44 | 13 | 17 | 1 | 10 | 1 | 3/6 |
| T/R(A) | 26 | 14 | 26 | 45 | 14 | 16 | 2 | 11 | 2 | 1/5 |
| T/R(B) | 27 | 15 | 27 | 46 | 15 | 15 | 3 | 12 | 3 | 2/4 |

(8) RS-485 connection diagram 8)




*1 When combining the module, because the communication line is connected between the modules with each other, wire only the communication terminal on the both end of the combination module.

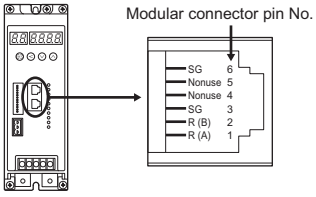
*2 Terminating resistor should be provided for a temperature controller which will be a terminal. When using X-TIO, turn ON the terminating resistor selector in the terminal base. When combining the module, provide the terminating resistor to the end of the combination module (the one that is far from the converter).

*3 For the terminal number of the temperature controller, refer to the following table.

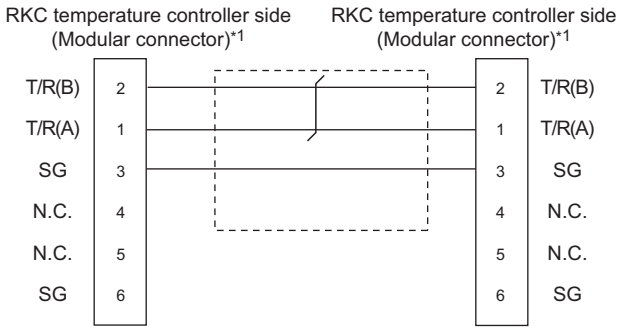
| Signal name | Terminal No. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Z-TIO/ Z-CT | CB100/CB400 /CB500/CB900 | CB700 | FB100 | | FB400/FB90 | | RB100/RB400 /RB500/RB900 | RB700 |
| | | | | Communication 1 | Communication 2 | Communication 1 | Communication 2 | | |
| SG | 5 | 13 | 7 | 13 | 16 | 25 | 25 | 13 | 25 |
| T/R(A) | 3 | 14 | 8 | 14 | 17 | 26 | 28 | 14 | 26 |
| T/R(B) | 4 | 15 | 9 | 15 | 18 | 27 | 29 | 15 | 27 |

| Signal name | Terminal No. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | PF900 PF901 AG500 | HA400/401 HA900/901 | | MA900/MA901 | RMC500 | THV-A1*4 | X-TIO | SA100 | SA200 |
| | | Communication 1 | Communication 2 | | | | | | |
| SG | 25 | 13 | 25 | 44 | 13 | 3 | 17 | 1 | 10 |
| T/R(A) | 26 | 14 | 26 | 45 | 14 | 1 | 16 | 2 | 11 |
| T/R(B) | 27 | 15 | 27 | 46 | 15 | 2 | 15 | 3 | 12 |

*4 The following shows the pin assignment of the modular connector.



(9) RS-485 connection diagram 9)




*1 For details of the pin assignment, refer to the following manual.

User's Manual of the RKC temperature controller

## ■ Precautions when preparing a cable

(10)Cable length

The length of the RS-485 cable must be 1200m or less.

(11)GOT side connector

For the GOT side connector, refer to the following.

1.4.1 GOT connector specifications

(12)RKC temperature controller side connector

Use the connector compatible with the RKC temperature controller side module.
For details, refer to user's manual of the RKC temperature controller.

## ■ Connecting terminating resistors

(1) GOT side

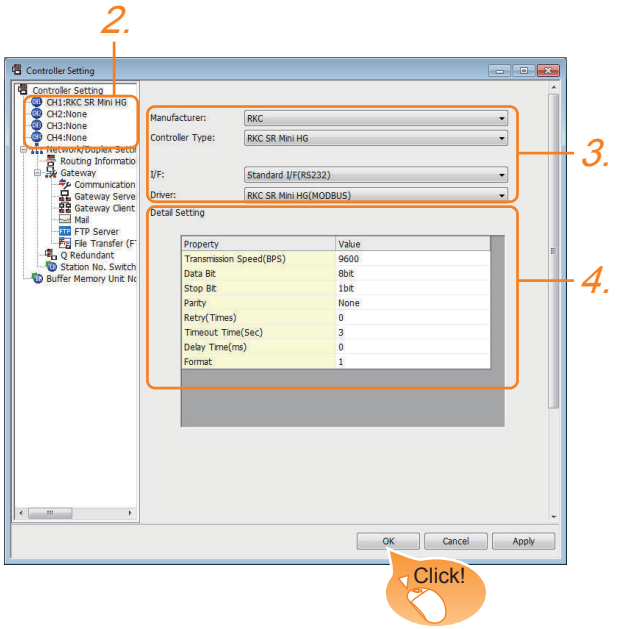
Set the terminating resistor by operating the terminating resistor setting switch.
For the procedure to set the terminating resistor, refer to the following.

1.4.3 Terminating resistors of GOT

# 9.4 GOT Side Settings

## 9.4.1 Setting communication interface (Communication settings)

Set the channel of the connected equipment.




1. Select [Common] → [Controller Setting] from the menu.
2. The Controller Setting window is displayed. Select the channel to be used from the list menu.
3. Set the following items.
   - Manufacturer: RKC
   - Controller Type: RKC SR Mini HG
   - I/F: Interface to be used
   - Driver: RKC SR Mini HG(MODBUS)
4. The detailed setting is displayed after Manufacturer, Controller Type,
   I/F, and Driver are set.
   Make the settings according to the usage environment.
   9.4.2Communication detail settings

Click the [OK] button when settings are completed.

**POINT**

The settings of connecting equipment can be confirmed in [I/F Communication Setting].
For details, refer to the following.
1.1.2 I/F communication setting

## 9.4.2 Communication detail settings

| Property | Value |
|---|---|
| Transmission Speed(BPS) | 9600 |
| Data Bit | 8 bit |
| Stop Bit | 1 bit |
| Parity | None |
| Retry(Times) | 0 |
| Timeout Time(Sec) | 3 |
| Delay Time(ms) | 0 |
| Format | 1 |

| Item | Description | Range |
|---|---|---|
| Transmission Speed | Set this item when change the transmission speed used for communication with the connected equipment.<br>(Default: 9600bps) | 9600bps,<br>19200bps,<br>38400bps,<br>57600bps,<br>115200bps |
| Data Bit | Set this item when change the data length used for communication with the connected equipment.<br>(Default: 8bits) | 7bits/8bits |
| Stop Bit | Set this item when change the data length used for communication with the connected equipment.<br>(Default: 1bit) | 1bit/2bits |
| Parity | Specify whether or not to perform a parity check, and how it is performed during communication.<br>(Default: No) | None<br>Even<br>Odd |
| Retry | Set the number of retries to be performed when a communication error occurs.<br>(Default: 0time) | 0 to 5times |
| Timeout Time | Set the time period for a communication to time out.<br>(Default: 3sec) | 3 to 30sec |
| Delay Time | Set this item to adjust the transmission timing of the communication request from the GOT.<br>(Default: 0ms) | 0 to 300ms |
| Format | Select the communication format.<br>(Default: 1)<br>Format 1:<br>Accessible to H-PCP-J, H-PCP-A, H-PCP-B, SRZ, FB, PF, HA, MA, RMC, SRX, B400 series<br>Format 2:<br>Accessible to CB series, RB, AG, THV, SA, SB1 series | 1/2 |

**POINT**

(1) Communication interface setting by the Utility
The communication interface setting can be changed on the Utility's [Communication setting] after writing [Communication Settings] of project data.
For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

(2) Precedence in communication settings
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

# 9.5 Temperature Controller Side Setting

**POINT**

YOKOGAWA temperature controller

For details of RKC temperature controller, refer to the following manual.

☞ User's Manual of the RKC temperature controller

| Model name | | Refer to |
|---|---|---|
| Temperature controller | H-PCP-J | 9.5.1 |
| | H-PCP-A, H-PCP-B | 9.5.2 |
| | Z-TIO module,<br>Z-DIO module,<br>Z-CT module | 9.5.3 |
| | Z-COM module | 9.5.4 |
| | CB Series | 9.5.5 |
| | FB Series | 9.5.6 |
| | RB Series | 9.5.7 |
| | PF900/901 | 9.5.8 |
| | HA400/401, HA900/901 | 9.5.9 |
| | AG500 | 9.5.10 |
| | RMC500 | 9.5.11 |
| | MA900, MA901 | 9.5.12 |
| | THV-A1 | 9.5.13 |
| | SA100<br>SA200 | 9.5.14 |
| | X-TIO module | 9.5.15 |

## 9.5.1 Connecting to H-PCP-J

### ■ Communication settings

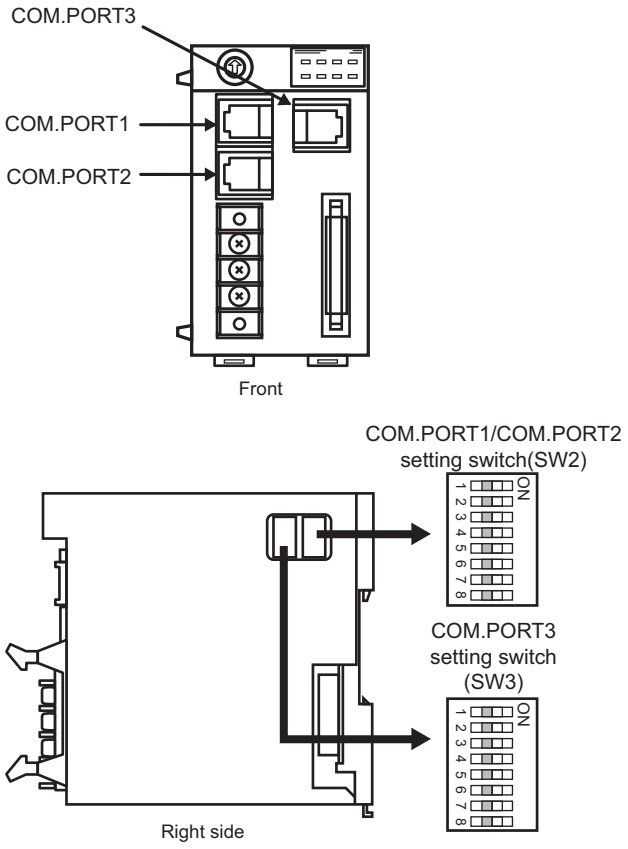
Make the communication settings of the temperature controller.

| Item | Setting range |
|---|---|
| Transmission speed*1 | 9600bps, 19200bps, 38400bps |
| Communication mode | MODBUS |
| Data bit | 8bits |
| Parity bit | None |
| Stop bit*1 | 1bit |
| Unit address*2 | 0 to F |

*1 Adjust the settings with GOT settings.
*2 Select the unit address without overlapping with that of other units.

### ■ Setting DIP switches

Make the settings of transmission speed, communication mode, data length, parity bit and stop bit.




(1) Transmission speed settings

(a) COM.PORT1/COM.PORT2

| SW2 | | Communication speed |
|---|---|---|
| 3 | 4 | |
| OFF | OFF | 9600bps |
| ON | OFF | 19200bps |
| OFF | ON | 38400bps |

(b) COM.PORT3

| SW3 | | Communication speed |
|---|---|---|
| 3 | 4 | |
| OFF | OFF | 9600bps |
| ON | OFF | 19200bps |
| OFF | ON | 38400bps |

(2) Communication mode settings

(a) COM.PORT1/COM.PORT2

| SW2 | | | | Communication protocol |
|---|---|---|---|---|
| 5 | 6 | 7 | 8 | |
| ON | OFF | OFF | OFF | MODBUS protocol |

(b) COM.PORT3

| SW3 | Communication protocol |
|---|---|
| 5 | |
| ON | MODBUS protocol |

(3) Settings of data length, parity bit, and stop bit

(a) COM.PORT1/COM.PORT2

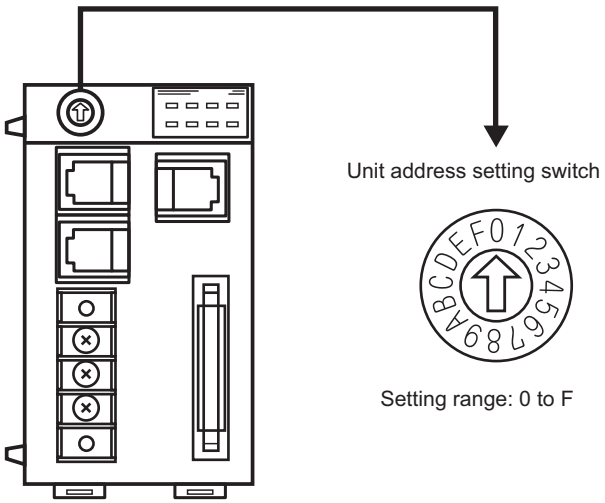
| SW2 | | Data bit configuration |
|---|---|---|
| 1 | 2 | |
| OFF | OFF | Data 8-bit, Non parity, Stop 1bit |

(b) COM.PORT3

| SW3 | | Data bit configuration |
|---|---|---|
| 1 | 2 | |
| OFF | OFF | Data 8-bit, Non parity, Stop 1bit |

## ■ Unit address settings

Set the unit address using the unit address setting switch.




## 9.5.2 Connecting to H-PCP-A, H-PCP-B

## ■ Communication settings

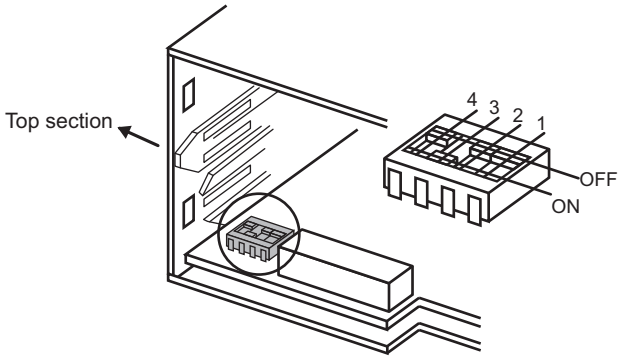
Make the communication settings of the temperature controller.

| Item | Setting range |
|---|---|
| Transmission speed*1 | 9600bps, 19200bps |
| Data bit | 8bits |
| Parity bit | None |
| Unit address*2 | 0 to F |

*1 Adjust the settings with GOT settings.
*2 Select the unit address without overlapping with that of other units.

## ■ Setting DIP switches

Make the settings of transmission speed, data length, parity bit, and stop bit.




Rear view of module mainframe with mother block removed

(1) Transmission speed settings

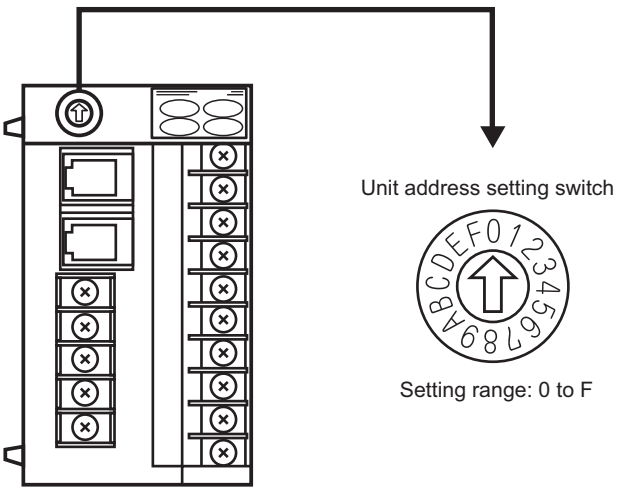
| 3 | 4 | Communication speed |
|---|---|---|
| OFF | ON | 9600bps |
| ON | ON | 19200bps |

(2) Settings of data length and parity bit

| 1 | 2 | Data bit configuration |
|---|---|---|
| OFF | OFF | Data 8-bit, Non parity |

## ■ Unit address settings

Set the unit address using the unit address setting switch.




# 9.5.3 Connecting to Z-TIO, Z-DIO, Z-CT

### (1) Communication settings

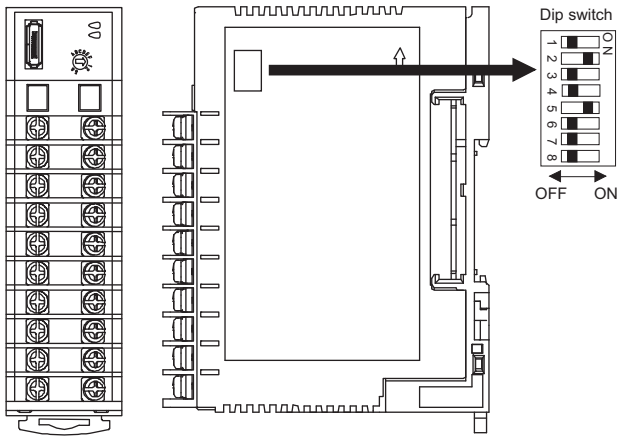
Make the communication settings of the temperature controller.

| Item | Setting range |
|---|---|
| Communication speed*1 | 9600bps, 19200bps, 38400bps |
| Communication protocol | MODBUS |
| Data bit configuration | Data bit : 8bits, Parity : None |
| | Data bit : 8bits, Parity : Even |
| | Data bit : 8bits, Parity : Odd |
| | Stop bit : 1bit (fixed) |
| Unit address*2 | 0 to F |
| Interval time | 0 to 250ms |

*1 Adjust the settings with GOT settings.
*2 Select the module address without overlapping with that of other units.

### (2) Setting DIP switches

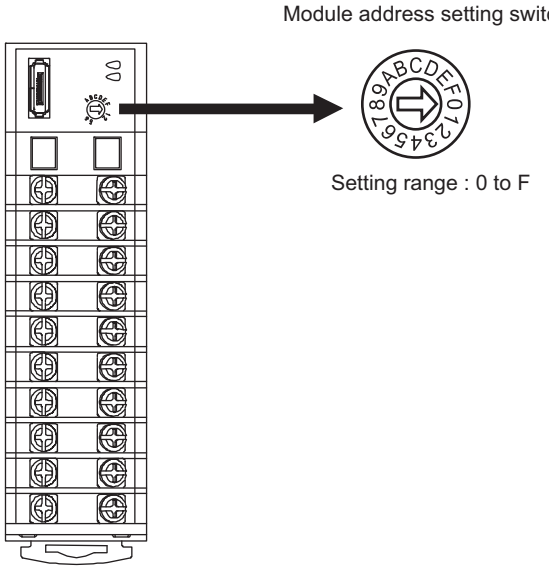
Make the settings of transmission speed, data bit configuration, communication protocol




| Setting item | Set value | Switch position | | | | | |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 |
| Communication speed | 9600bps | ON | OFF | | | | |
| | 19200bps | OFF | ON | | | | |
| | 38400bps | ON | ON | | | | |
| Data bit configuration | Data bit: 8bits, Parity: None | | | OFF | OFF | ON | |
| | Data bit: 8bits, Parity: Even | | | OFF | ON | ON | |
| | Data bit: 8bits, Parity: Odd | | | ON | ON | ON | |
| Communication protocol | MODBUS | | | | | | ON |

(3) Unit address settings

Set the unit address using the unit address setting switch.




(4) Interval time settings

Configure the interval time setting using the RKC communication setting tool (WinPCI).
After the communication is started, set as follows.

| Setting item | Set value |
|---|---|
| Instrument | 0 |
| CFG file | ZTIO_rkc.cfg |
| Interval time | 0 to 250ms |

For the using method of RKC communication setting tool, refer to the following.

☞ RKC communication setting tool user's manual

## 9.5.4 Connecting to Z-COM

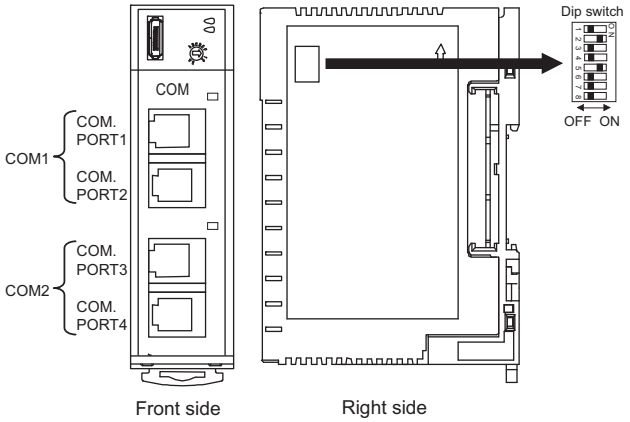
(1) Communication settings

| Item | Setting range |
|---|---|
| Communication speed*1 | 9600bps, 19200bps, 38400bps |
| Communication protocol | Host (MODBUS) |
| Data bit | 8bits (fixed) |
| Parity | None (fixed) |
| Stop bit | 1bit (fixed) |
| Unit address*2 | 0 to F |
| Interval time | 0 to 250ms |
| Dip switch settings valid / invalid | valid |

*1 Adjust the settings with GOT settings.
*2 Select the unit address without overlapping with that of other units.

(2) Setting DIP switches

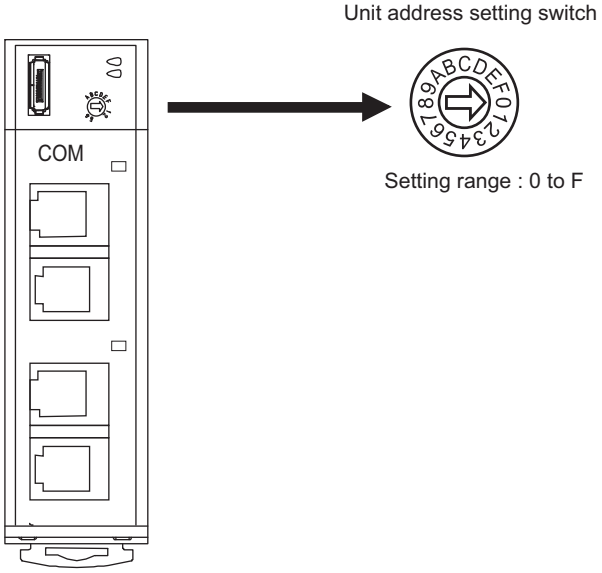
Make the settings of transmission speed, data bit configuration, communication protocol.




| Setting item | Set value | Switch position | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Communication speed (COM1) | 9600bps | ON | OFF | | | | | | |
| | 19200bps | OFF | ON | | | | | | |
| | 38400bps | ON | ON | | | | | | |
| Communication protocol (COM1) | Host (MODBUS) | | | ON | | | | | |
| Communication speed (COM2) | 9600bps | | | | OFF | | | | |
| | 19200bps | | | | ON | | | | |
| Communication protocol (COM2) | Host (MODBUS) | | | | | ON | OFF | OFF | |
| Dip switch settings valid / invalid | valid | | | | | | | | OFF |

(3) Unit address settings

Set the unit address using the unit address setting switch.




(4) Interval time settings

Configure the interval time setting using the RKC communication setting tool (WinPCI).

After the communication is started, set as follows.

| Setting item | Set value |
|---|---|
| Instrument | 0 |
| CFG file | ZCOM_rkc.cfg |
| Communication 1 interval time | 0 to 250ms |
| Communication 2 interval time | |

For the using method of RKC communication setting tool, refer to the following.

☞ RKC communication setting tool user's manual

## 9.5.5 Connecting to CB Series

(1) Communication settings

| Item | Setting range |
|---|---|
| Device address*1 | 1 to 99 |
| Communication speed*2 | 2: 9600bps<br>3: 19200bps |
| Data bit configuration | 0: 8/1/None<br>6: 8/1/Even<br>7: 8/1/Odd |
| Interval time | 0 to 150 |

*1 When the setting value is set to 0, a communication is not made.

*2 Adjust the settings with GOT settings.

(2) Communication setting mode

Set the communication setting mode using the operation panel of the CB series main unit.

For details of the communication setting mode, refer to the following.

☞ CB series "Communication Instruction Manual"

## 9.5.6 Connecting to FB Series

(1) Communication settings

| Item*1 | Setting range*1 |
|---|---|
| Communication protocol | 1: MODBUS |
| Device address (Slave address)*2 | 1 to 99 |
| Communication speed*3 | 96: 9600bps<br>19.2: 19200bps<br>38.4: 38400bps |
| Data bit configuration | (2) Refer to the data bit configuration. |
| Interval time | 0 to 250 |

*1 Items and setting range are common to communication 1 and communication 2.

*2 When the setting value is set to 0, a communication is not made.

*3 Adjust the settings with GOT settings.

(2) Data bit configuration

| Set value | Data bit | Parity bit | Stop bit |
|---|---|---|---|
| 8n1 | 8 | None | 1 |
| 8n2 | 8 | None | 2 |
| 8E1 | 8 | Even | 1 |
| 8E2 | 8 | Even | 2 |
| 8o1 | 8 | Odd | 1 |
| 8o2 | 8 | Odd | 2 |

(3) Communication setting mode

Set the communication setting mode using the operation panel of the FB series main unit.

For details of the communication setting mode, refer to the following.

☞ FB series "Communication Instruction Manual"

## 9.5.7 Connecting to RB Series

(1) Communication settings

| Item | Setting range |
|---|---|
| Communication protocol | 1: MODBUS |
| Device address (Slave address)*1 | 1 to 99 |
| Communication speed*2 | 2: 9600bps<br>3: 19200bps |
| Data bit configuration | (2) Refer to the data bit configuration. |
| Interval time | 0 to 250 |

*1 When the setting value is set to 0, a communication is not made.
*2 Adjust the settings with GOT settings.

(2) Data bit configuration

| Set value | Data bit | Parity bit | Stop bit |
|---|---|---|---|
| 0 | 8 | None | 1 |
| 1 | 8 | None | 2 |
| 2 | 8 | Even | 1 |
| 3 | 8 | Even | 2 |
| 4 | 8 | Odd | 1 |
| 5 | 8 | Odd | 2 |

(3) Communication setting mode

Set the communication setting mode using the operation panel of the RB series main unit.
For details of the communication setting mode, refer to the following.

☞ RB series "Communication Instruction Manual"

## 9.5.8 Connecting to PF900/900

### ■ Communication settings

Make the communication settings by operating the key of the temperature controller.

| Item | Setting range |
|---|---|
| Communication speed 1*1 | 9600bps, 19200bps, 38400bps, 57600bps |
| Communication protocol 1 | MODBUS |
| Data bit configuration 1*1 (Data bit, Parity bit, Stop bit) | [8N1]: 8bit, None, 1bit<br>[8N2]: 8bit, None, 2bit<br>[8E1]: 8bit, Even, 1bit<br>[8E2]: 8bit, Even, 2bit<br>[8O1]: 8bit, Odd, 1bit<br>[8O2]: 8bit, Odd, 2bit |
| Device address 1*2 (Slave address 1) | 1 to 99*4 |
| Interval time*3 | 0 to 250 (ms) |

*1 Adjust the settings with GOT settings.
*2 Select the device address1 without overlapping with that of other units.
*3 Set the maximum time from the sending of the last character stop bit from the GOT side until the switching of the GOT side to the receiving status (until the temperature controller becomes ready to send). Set as necessary.
*4 When the setting value is set to 0, a communication is not made.

## 9.5.9 Connecting to HA400/401, HA900/901

### ■ Communication settings

Make the communication settings by operating the key of the temperature controller.
(Communication 1)

| Item | Setting range |
|---|---|
| Communication speed 1*1 | 9600bps, 19200bps, 38400bps |
| Data bit configuration 1*1 (Data bit, Parity bit, Stop bit) | [8N1]: 8bit, None, 1bit<br>[8N2]: 8bit, None, 2bit<br>[8E1]: 8bit, Even, 1bit<br>[8E2]: 8bit, Even, 2bit<br>[8O1]: 8bit, Odd, 1bit<br>[8O2]: 8bit, Odd, 2bit |
| Device address 1*2 (Slave address 1) | 1 to 99*4 |
| Interval time*3 | 0 to 250 (ms) |

(Communication 2)

| Item | Setting range |
|---|---|
| Communication speed 2*1 | 9600bps, 19200bps, 38400bps |
| Data bit configuration 2*1 (Data bit, Parity bit, Stop bit) | [8N1]: 8bit, None, 1bit<br>[8N2]: 8bit, None, 2bit<br>[8E1]: 8bit, Even, 1bit<br>[8E2]: 8bit, Even, 2bit<br>[8O1]: 8bit, Odd, 1bit<br>[8O2]: 8bit, Odd, 2bit |
| Device address 2*2 (Slave address 2) | 1 to 99*4 |
| Interval time*3 | 0 to 250 (ms) |

*1 Adjust the settings with GOT settings.
*2 Select the device address1/2 without overlapping with that of other units.
*3 Set the maximum time from the sending of the last character stop bit from the GOT side until the switching of the GOT side to the receiving status (until the temperature controller becomes ready to send). Set as necessary.
*4 When the setting value is set to 0, a communication is not made.

## 9.5.10 Connecting to AG500

### ■ Communication settings

Make the communication settings by operating the key of the temperature controller.

| Item | Setting range |
|---|---|
| Communication speed*1 | 9600bps, 19200bps, 38400bps |
| Communication protocol | MODBUS |
| Data bit configuration*1 (Data bit, Parity bit, Stop bit) | [8N1]: 8bit, None, 1bit<br>[8N2]: 8bit, None, 2bit<br>[8E1]: 8bit, Even, 1bit<br>[8E2]: 8bit, Even, 2bit<br>[8O1]: 8bit, Odd, 1bit<br>[8O2]: 8bit, Odd, 2bit |
| Device address*2 (Slave address) | 1 to 99*4 |
| Interval time*3 | 0 to 250 (ms) |

*1 Adjust the settings with GOT settings.
*2 Select the device address1 without overlapping with that of other units.
*3 Set the maximum time from the sending of the last character stop bit from the GOT side until the switching of the GOT side to the receiving status (until the temperature controller becomes ready to send). Set as necessary.
*4 When the setting value is set to 0, a communication is not made.

## 9.5.11 Connecting to RMC500

### ■ Communication settings

Make the communication settings by operating the key of the temperature controller.

| Item | Setting range |
|---|---|
| Communication speed*1 | 9600bps, 19200bps, 38400bps |
| Communication protocol | MODBUS |
| MODBUS data*2 Extension time | 0 to 255 (ms) |
| Data bit configuration*1 (Data bit, Parity bit, Stop bit) | [8N1]: 8bit, None, 1bit<br>[8N2]: 8bit, None, 2bit<br>[8E1]: 8bit, Even, 1bit<br>[8E2]: 8bit, Even, 2bit<br>[8O1]: 8bit, Odd, 1bit<br>[8O2]: 8bit, Odd, 2bit |
| Device address*3 (Slave address) | 1 to 99*4 |
| Interval time*5 | 0 to 250 (ms) |

*1 Adjust the settings with GOT settings.
*2 Set the extension time for the data interval time in the MODBUS communication (which is lower than 24 bit time). Set when the data time interval exceeds 24 bit time.
*3 Select the device address without overlapping with that of other units.
*4 When the setting value is set to 0, a communication is not made.
*5 Set the maximum time from the sending of the last character stop bit from the GOT side until the switching of the GOT side to the receiving status (until the temperature controller becomes ready to send). Set as necessary.

## 9.5.12 Connecting to MA900, MA901

### ■ Communication settings

Make the communication settings by operating the key of the temperature controller.

| Item | Setting range |
|---|---|
| Communication speed*1 | 9600bps, 19200bps |
| Data bit configuration*1 (Data bit, Parity bit, Stop bit) | [8N1]: 8bit, None, 1bit<br>[8N2]: 8bit, None, 2bit<br>[8E1]: 8bit, Even, 1bit<br>[8E2]: 8bit, Even, 2bit<br>[8O1]: 8bit, Odd, 1bit<br>[8O2]: 8bit, Odd, 2bit |
| Device address*2 (Slave address) | 1 to 99*4 |
| Interval time*3 | 0 to 250 (ms) |

*1 Adjust the settings with GOT settings.
*2 Select the device address1 without overlapping with that of other units.
*3 Set the maximum time from the sending of the last character stop bit from the GOT side until the switching of the GOT side to the receiving status (until the temperature controller becomes ready to send). Set as necessary.
*4 When the setting value is set to 0, a communication is not made.

## 9.5.13 Connecting to THV-A1

### ■ Communication settings

Make the communication settings by operating the key of the temperature controller.

| Item | Setting range |
|---|---|
| Communication speed*1 | 9600bps (fixed) |
| Data bit configuration*1 | Data bit: 8bit (fixed)<br>Parity bit: None (fixed)<br>Stop bit: 1bit (fixed) |
| Device address*2 (Slave address) | 1 to 99*4 |
| Interval time*3 | 0 to 250 (ms) |

*1 Adjust the settings of the GOT side with the temperature controller settings.
*2 Select the device address1 without overlapping with that of other units.
*3 Set the maximum time from the sending of the last character stop bit from the GOT side until the switching of the GOT side to the receiving status (until the temperature controller becomes ready to send). Set as necessary.
*4 When the setting value is set to 0, a communication is not made.

## 9.5.14 Connecting to SA100/SA200

### ■ Communication settings

Make the communication settings by operating the key of the temperature controller.

| Item | Setting range |
|---|---|
| Communication speed*1 | 9600bps, 19200bps |
| Data bit configuration*1<br>(Data bit, Parity bit, Stop bit) | [8N1]: 8bit, None, 1bit<br>[8N2]: 8bit, None, 2bit<br>[8E1]: 8bit, Even, 1bit<br>[8E2]: 8bit, Even, 2bit<br>[8O1]: 8bit, Odd, 1bit<br>[8O2]: 8bit, Odd, 2bit |
| Device address*2<br>(Slave address) | 1 to 99*4 |
| Interval time*3 | 0 to 250 (ms) |

*1 Adjust the settings with GOT settings.
*2 Select the device address1 without overlapping with that of other units.
*3 Set the maximum time from the sending of the last character stop bit from the GOT side until the switching of the GOT side to the receiving status (until the temperature controller becomes ready to send). Set as necessary.
*4 When the setting value is set to 0, a communication is not made.

## 9.5.15 Connecting to X-TIO Module

(1) Communication settings

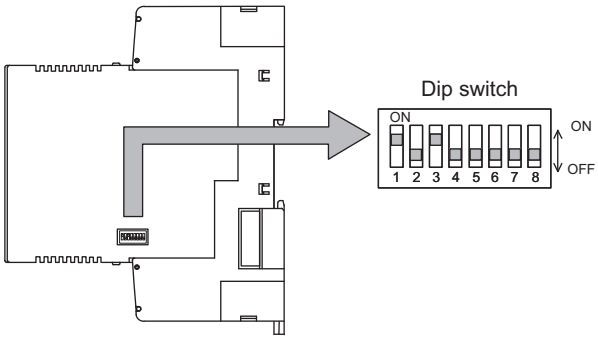
Make the communication settings of the temperature controller.

| Item | Setting range |
|---|---|
| Communication speed*1 | 9600bps, 19200bps, 38400bps |
| Communication protocol | MODBUS |
| Data bit configuration | Data bit: 8bit, Parity: None |
| | Data bit: 8bit, Parity: Even |
| | Data bit: 8bit, Parity: Odd |
| | Stop bit: 1bit (fixed) |
| Module address*2 | 1 to 99 |
| Internal data bus terminating resistor | When combining the module, turn ON the internal data bus terminating resistor at both ends of the module. |
| Data interval extension time | 0 to 99ms |

*1 Adjust the settings with GOT settings.
*2 When the setting value is set to 0, a communication is not made.

(2) Setting DIP switches

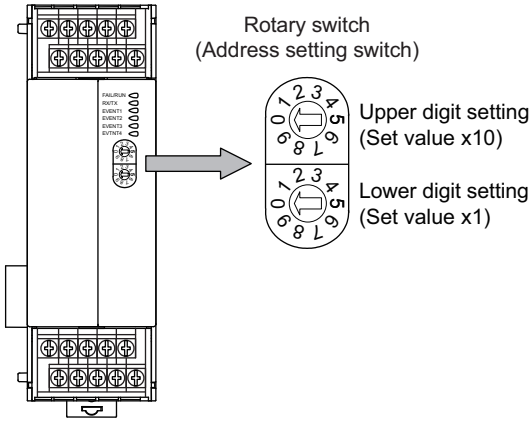
Make the settings of transmission speed, data bit configuration, communication protocol.




| Setting item | Set value | Switch position | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Communication speed | 9600bps | ON | OFF | | | | | | |
| | 19200bps | OFF | ON | | | | | | |
| | 38400bps | ON | ON | | | | | | |
| Data bit configuration | Data bit: 8bit, Parity: None | | | ON | OFF | OFF | | | |
| | Data bit: 8bit, Parity: Even | | | ON | OFF | ON | | | |
| | Data bit: 8bit, Parity: Odd | | | ON | ON | ON | | | |
| Communication protocol | MODBUS | | | | | | ON | | |
| Internal data bus termination resistor setting | OFF | | | | | | | | OFF |
| | ON | | | | | | | | ON |
| Data interval extension time | 0 to 99ms | | | | ON | OFF | ON | | |

(3) Module address settings

Set the unit address using the rotary switch (address setting switch).



HINT

The rotary switch (address setting switch) is also used for the data interval extension time setting.
The setting method is the same as that of the module address.
For the data interval extension time, refer to the following.

(4)Data interval extension time settings

(4) Data interval extension time settings
Set the data interval extension time as the following procedure.

1. Turn the power of the module OFF.
2. Set the DIP switch 4 and 6 to ON and 5 to OFF.
3. Set the data interval extension time using the rotary switch (address setting switch).
   For the setting method, refer to the following.
   (3)Module address settings
4. Turn the power of the module ON.
   The FAIL/RUN lamp lights in green and the set time becomes valid.
5. Turn the power of the module OFF again and set the DIP switches and rotary switch to the original position.

## 9.5.16 Connecting to SB1

### ■ Communication settings

Make the communication settings of SB1 using the switch key on the front surface.
For the operation procedure, refer to the SB1 manual.

| Item | Setting range |
|---|---|
| Communication protocol*2 | 0: RKC communication<br>1: MODBUS |
| Device address*1*3 (Slave address) | 0 to 99 |
| Communication speed*1*4 | 0: 2400bps<br>1: 4800bps<br>2: 9600bps<br>3: 19200bps |
| Data bit configuration*1*5 | 0 to 5 |
| Interval time*6 | 0 to 250ms |

*1 Adjust the settings with GOT settings.
*2 Select 1: MODBUS.
*3 When the setting value is 0, communication is not performed.
*4 The communication speed cannot be set to 2400bps or 4800bps on the GOT side.
Select 2 or 3.
*5 For details on the data bit configuration, refer to the following.

| Set value | Data bit | Parity bit | Stop bit |
|---|---|---|---|
| 0 | 8 | None | 1 |
| 1 | 8 | None | 2 |
| 2 | 8 | Even | 1 |
| 3 | 8 | Even | 2 |
| 4 | 8 | Odd | 1 |
| 5 | 8 | Odd | 2 |

*6 Set the maximum time from when the last character stop bit is sent from the GOT side until the transmission cable becomes ready to receive.

## 9.5.17 Connecting to B400

### ■ Communication settings

Make the communication settings of B400 using the rotary switch key and the DIP switch.
For the operation procedure, refer to the B400 manual.

| Item | Setting range | Settings |
|---|---|---|
| Unit address setting (CH1 to CH8) | 0 to 99*1 | (1)Rotary switch setting (SW1, SW2) |
| Communication speed | 4800bps, 9600bps, 19200bps, 38400bps | (2)DIP switch setting (SW3) |
| Data bit configuration | 0 to 5 | |
| Communication specification setting | RS-422A, RS-485 | (3)DIP switch settings (SW4) |
| Termination resistor setting | Enable, Disable | |

*1 When the setting value is 98 or 99, the communication address is the same as for 97.

(1) Rotary switch setting (SW1, SW2)
Set the unit address using the rotary switch.

Rotary switch
(Address setting switch)

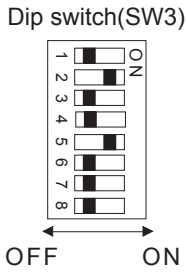
SW1: Lower digit setting
(Set value x1)

SW2: Upper digit setting
(Set value x10)

| Item | Setting range |
|---|---|
| Unit address setting (CH1 to CH4) | The communication address is the rotary switch setting value + 1. |
| Unit address setting (CH5 to CH8) | The communication address is the rotary switch setting value + 2. |

(2) DIP switch setting (SW3)

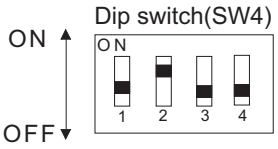
Set the communication speed and the data bit configuration using the DIP switch (SW3).




| Setting item | Set value | Switch position | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Communication speed | 4800bps | OFF | OFF | - | | | | | |
| | 9600bps | ON | OFF | | | | | | |
| | 19200bps | OFF | ON | | | | | | |
| | 38400bps | ON | ON | | | | | | |
| Data bit configuration | Data bit: 8 bits, Parity: None, Stop: 2 bits | - | | OFF | OFF | - | | | |
| | Data bit: 8 bits, Parity: None, Stop: 1 bit | - | | ON | OFF | - | | | |
| | Data bit: 8 bits, Parity: Even, Stop: 1 bit | - | | OFF | ON | - | | | |
| | Data bit: 8 bits, Parity: Odd, Stop: 1 bit | - | | ON | ON | - | | | |

(3) DIP switch settings (SW4)

Set the communication specifications and the termination resistor using the DIP switch (SW4).

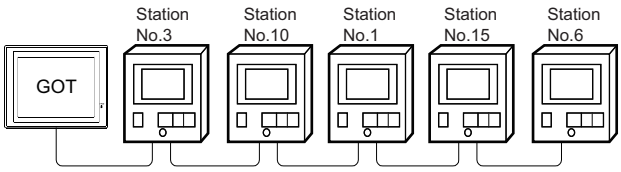



| Setting item | Set value | Switch position | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| Communication specification setting | RS-422A | OFF | OFF | - | |
| | RS485 | ON | ON | - | |
| Termination resistor setting | Enable | - | | | ON |
| | Disable | - | | | OFF |

## 9.5.18 Station number setting

Set each station number so that no station number overlaps.

The station number can be set without regard to the cable connection order. There is no problem even if station numbers are not consecutive.




Examples of station number setting

(1) Direct specification

The station number setting range of the temperature controller side differs from that of the GOT side. Specify the station No. of the temperature controller to be changed when setting devices referring the following table.

| Temperature controller | Module address setting of temperature controller side | GOT side station number setting | Remark |
|---|---|---|---|
| H-PCP-J<br>H-PCP-A<br>H-PCP-B<br>Z-TIO<br>Z-COM | 0 to F (Hexadecimal) | 1 to 16 (Decimal) | The GOT side station number setting is the module address setting value +1. |
| Z-DIO | 0 to F (Hexadecimal) | 17 to 32 (Decimal) | The GOT side station number setting is the module address setting value +17. |
| Z-CT | 0 to F (Hexadecimal) | 33 to 48 (Decimal) | The GOT side station number setting is the module address setting value +33. |
| X-TIO | 1 to 99 (Decimal) | 2 to 100 (Decimal) | The GOT side station number setting is the module address setting value +1. |
| CB, FB, RB, PF, AG, HA, MA, RMC, THV, SA, SB1 | 1 to 99 (Decimal) | 1 to 99 (Decimal) | The GOT side station number setting is the same as the module address setting value. |
| B400 | 1 to 99 (Decimal) | 1 to 99 (Decimal) | The GOT side station number is the module address setting value +1 or +2. |

(2) Indirect specification

When setting the device, indirectly specify the station number of the temperature controller of which data is to be changed using the 16-bit GOT internal data register (GD10 to GD25).

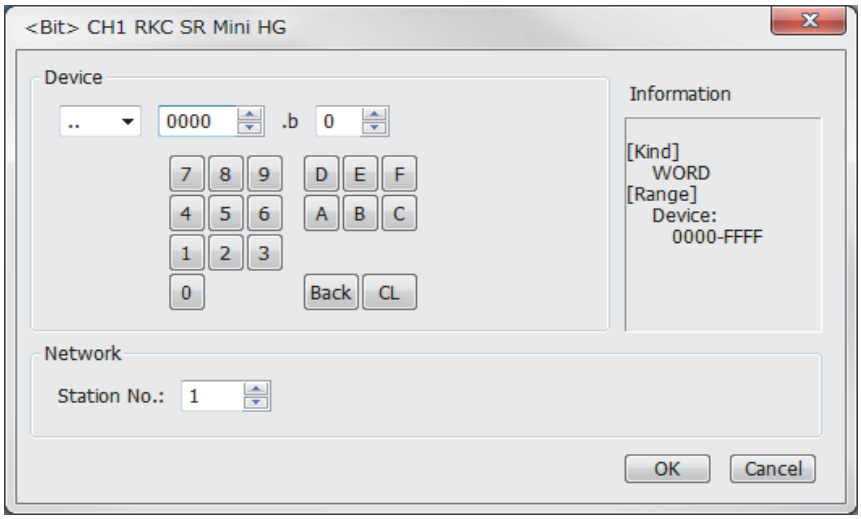
When specifying the station No. from 100 to 115 on GT Designer3, the value of GD10 to GD25 compatible to the station No. specification will be the station No. of the temperature controller.

| Specification station NO. | Compatible device | Setting range |
|---|---|---|
| 100 | GD10 | 1 to 99<br>For the setting other than the above, error (dedicated device is out of range) will occur. |
| 101 | GD11 | |
| 102 | GD12 | |
| 103 | GD13 | |
| 104 | GD14 | |
| 105 | GD15 | |
| 106 | GD16 | |
| 107 | GD17 | |
| 108 | GD18 | |
| 109 | GD19 | |
| 110 | GD20 | |
| 111 | GD21 | |
| 112 | GD22 | |
| 113 | GD23 | |
| 114 | GD24 | |
| 115 | GD25 | |

# 9.6 Device Range that Can Be Set

The device ranges of controller that can be used for GOT are as follows.
Note that the device ranges in the following tables are the maximum values that can be set in GT Designer3.
The device specifications of controllers may differ depending on the models, even though belonging to the same series.
Please make the setting according to the specifications of the controller actually used.
When a non-existent device or a device number outside the range is set, other objects with correct device settings may not be monitored.

## ■ Setting item



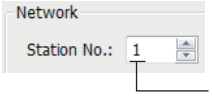

| Item | Description | |
|---|---|---|
| Device | Set the device name, device number, and bit number.<br>The bit number can be set only when specifying the bit of word device. | |
| Information | Displays the device type and setting range which are selected in [Device]. | |
| Network | Set the monitor target of the set device. | |
| | Station No. | To monitor the temperature controller of the specified station No.<br>1 to 99 :To monitor the temperature controller of the specified station No.<br>100 to 115 To specify the station No. of the temperature controller to be monitored by the value of GOT data register (GD).*1 |

*1 The following shows the relation between station numbers of the temperature controller and the GOT data register.

| Station No. | GOT data register (GD) | Setting range |
|---|---|---|
| 100 | GD10 | 1 to 99<br>(If setting a value outside the range above, a device range error occurs.) |
| 101 | GD11 | |
| : | : | |
| 114 | GD24 | |
| 115 | GD25 | |

POINT

Device settings of RKC temperature controller




Set by a value of "unit address + 1".
• For unit address 0: Set "1".
• For unit address F: Set "16".

### 9.6.1 RKC SR Mini HG

| Device name | | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | The bit specification of the word device | Setting range of each word device | — |
| Word device | Data (..) | ..0000 to ..FFFF | Hexadecimal |

## 9.7 Precautions

■ Station number setting of the temperature controller system

Make sure to establish temperature controller system with No.01 station.

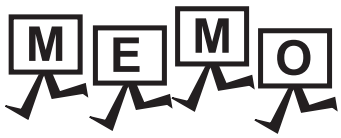
■ GOT clock control

Since the temperature controller does not have a clock function, the settings of "time adjusting" or "time broad cast" by GOT clock control will be disabled.

■ Disconnecting some of multiple connected equipment

By setting GOT internal device, GOT can cut the portion of multiple connection of the controller. For example, faulty station that has communication timeout can be cut from the system.
For details of GOT internal device setting, refer to the following manual.

☞ GT Designer3 (GOT2000) Help


MEMO

# 10

# CONNECTION TO ALLEN-BRADLEY PLC


10.1 Connectable Model List . . . . . 10 - 2
10.2 Serial Connection . . . . . 10 - 4
10.3 Ethernet Connection . . . . . 10 - 14
10.4 Device Range that Can Be Set . . . . . 10 - 20

# 10. CONNECTION TO ALLEN-BRADLEY PLC

## 10.1 Connectable Model List

The following table shows the connectable models.

| Series | Model name | Clock | Communication Type | Connectable model | Refer to |
|---|---|---|---|---|---|
| SLC500 | SLC500-20 | × | RS-232 | GT27 GT25 GT23 | 10.2.1 |
| | SLC500-30 | | | | |
| | SLC500-40 | | | | |
| | SLC5/01 | | | | |
| | SLC5/02 | | | | |
| | SLC5/03 | ○ | RS-232 | GT27 GT25 GT23 GT21 | |
| | SLC5/04 | | | | |
| | SLC5/05 | | | | |
| MicroLogix1000 (Digital CPU) | 1761-L10BWA | × | RS-232 | GT27 GT25 GT23 GT21 | 10.2.2 |
| | 1761-L10BWB | | | | |
| | 1761-L16AWA | | | | |
| | 1761-L16BWA | | | | |
| | 1761-L16BWB | | | | |
| | 1761-L16BBB | | | | |
| | 1761-L32AWA | | | | |
| | 1761-L32BWA | | | | |
| | 1761-L32BWB | | | | |
| | 1761-L32BBB | | | | |
| | 1761-L32AAA | | | | |
| MicroLogix1000 (Analog CPU) | 1761-L20AWA-5A | × | RS-232 | GT27 GT25 GT23 GT21 | |
| | 1761-L20BWA-5A | | | | |
| | 1761-L20BWB-5A | | | | |
| MicroLogix1200 | 1762-L24BWA | × | RS-232 | GT27 GT25 GT23 GT21 | |
| MicroLogix1400 | 1766-L32AWA | × | RS-232 | GT27 GT25 GT23 GT21 | |
| MicroLogix1500 | 1764-LSP | × | RS-232 | GT27 GT25 GT23 GT21 | |

| Series | Model name | Clock | Communication Type | Connectable model | Refer to |
|---|---|---|---|---|---|
| ControlLogix | 1756-L | × | RS-232<br>Ethernet | GT27 GT25 GT23 | 10.2.3<br>10.3.1<br>10.3.2 |
| | 1756-L1M1 | | | | |
| | 1756-L1M2 | | | | |
| | 1756-L1M3 | | | | |
| | 1756-L61 | | | | |
| | 1756-L62 | | | | |
| | 1756-L63 | | | | |
| | 1756-L55M12 | | | | |
| | 1756-L55M13 | | | | |
| | 1756-L55M14 | | | | |
| | 1756-L55M16 | | | | |
| | 1756-L55M22 | | | | |
| | 1756-L55M23 | | | | |
| | 1756-L55M24 | | | | |
| | 1756-L72S | × | Ethernet | GT27 GT25 GT23 | 10.3.1<br>10.3.2 |
| CompactLogix | 1769-L31*1 | × | RS-232<br>Ethernet | GT27 GT25 GT23 | 10.2.3<br>10.3.1<br>10.3.2 |
| | 1769-L32E | | | | |
| | 1769-L32C*1 | | | | |
| | 1769-L35E | | | | |
| | 1769-L35CR*1 | | | | |
| FlexLogix | 1794-L33*2 | × | RS-232<br>Ethernet | GT27 GT25 GT23 | 10.2.3<br>10.3.2 |
| | 1794-L34*2 | | | | |

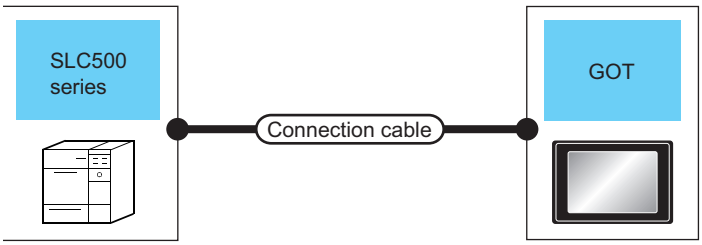
*1 1769-L31, 1769-L32C, and 1769-L35CR do not Ethernet connection type: EtherNet/IP (AB Tag).

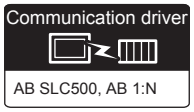
*2 1794-L33, 1794-L34 do not Ethernet connection type: EtherNet/IP (AB).

# 10.2 Serial Connection

## 10.2.1 System Configuration for connecting to SLC500 Series

■ When connecting to one PLC

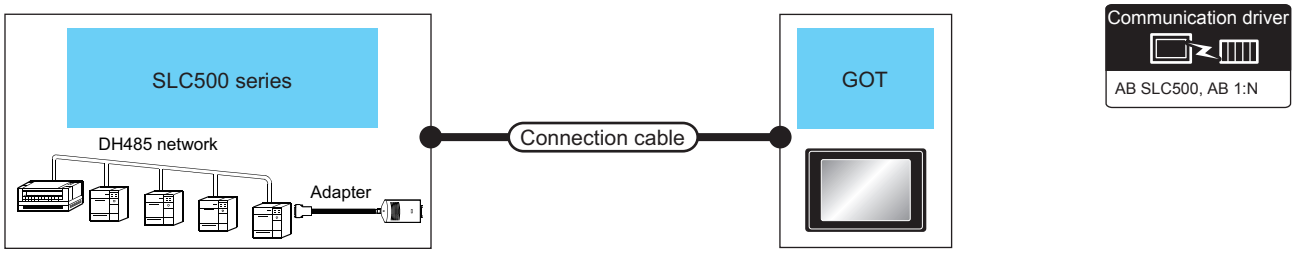



| PLC | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Series | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| SLC500 | RS-232 | GT09-C30R20701-9S(3m)<br>or<br>User preparing RS232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 PLC |
| | | | | GT15-RS2-9P | GT27 GT25 | |
| | | | | GT10-C02H-6PT9P*1 | GT21 03P R4 GT21 03P R2 | |
| | | User preparing RS232 connection diagram 5) | 15m | - (Built into GOT) | GT21 04R GT21 03P R2 | |

*1 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.

■ When connecting to multiple PLCs



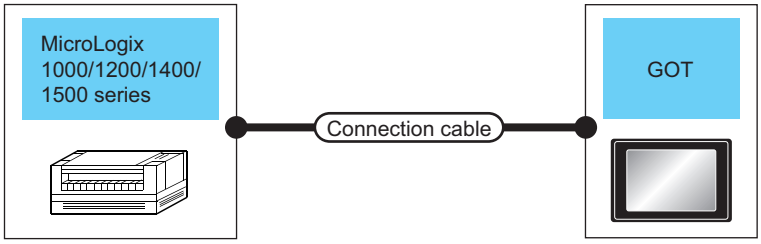

| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Series | Adapter*1 | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| SLC500 | 1770-KF3 | RS-232 | User preparing RS232 connection diagram 2) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 adapter |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | | | | | GT10-C02H-6PT9P*2 | GT21 R4 GT03P GT21 R2 GT03P | |
| | | | User preparing RS232 connection diagram 5) | 15m | - (Built into GOT) | GT21 R4 GT04R GT21 R2 GT03P | |

*1 Allen-Bradley product manufactured by Rockwell Automation, Inc. For details of the product, contact Rockwell Automation, Inc.

*2 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.

## 10.2.2 System configuration for connecting to MicroLogix1000/1200/1400/1500 Series

■ When connecting to one PLC

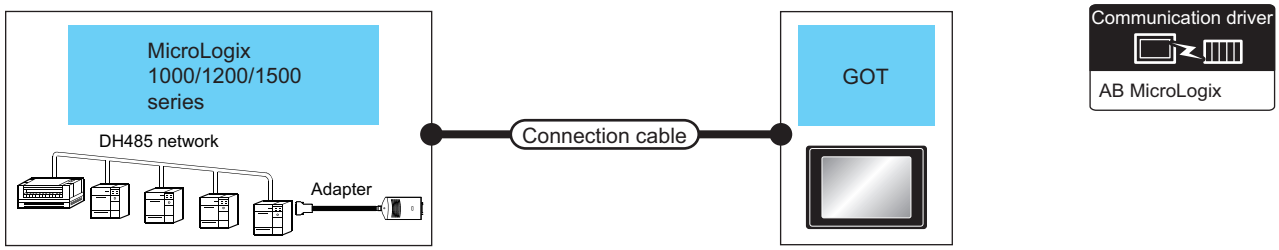



Communication driver
AB MicroLogix

| PLC | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Series*2 | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| MicroLogix1000/ 1200/1400/1500 | RS-232 | 1761-CBL-PM02*1<br>(Series C or later)<br>or<br>User preparing RS232 connection diagram 3) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 PLC |
| | | | | GT15-RS2-9P | GT27 GT25 | |
| | | | | GT10-C02H-6PT9P*3 | GT21 R4 GT21 R2 | |
| | | User preparing RS232 connection diagram 5) | 15m | - (Built into GOT) | GT21 R2 | |
| | | 1761-CBL-PM02*1<br>(Series C or later)<br>or<br>User preparing RS232 connection diagram 3)<br>+<br>User preparing RS232 connection diagram 6) | 15m | - (Built into GOT) | GT21 R2 | |

*1 Allen-Bradley product manufactured by Rockwell Automation, Inc. For details of the product, contact Rockwell Automation, Inc.
*2 For MicroLogix1000 (Digital CPU), it is supported in the series D and later.
*3 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.

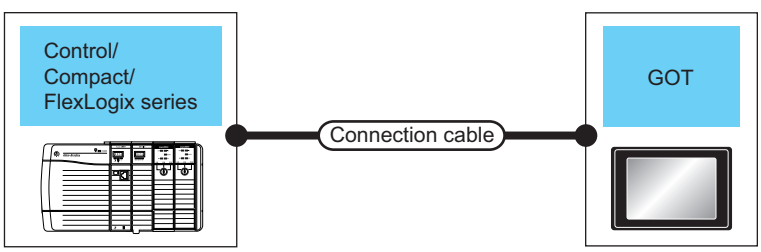
## ■ When connecting to multiple PLCs




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Series*2 | Adapter*1 | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| MicroLogix1000/ 1200/1400/1500 | 1770-KF3 | RS-232 | User preparing RS232 connection diagram 2) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 adapter |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | | | | | GT10-C02H-6PT9P*3 | GT21 R4 GT21 R2 | |
| | | | User preparing RS232 connection diagram 5) | 15m | - (Built into GOT) | GT21 R4 GT21 R2 | |

*1 Allen-Bradley product manufactured by Rockwell Automation, Inc. For details of the product, contact Rockwell Automation, Inc.
*2 For MicroLogix1000 (Digital CPU), it is supported in the series C and later.
*3 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.

## 10.2.3 System Configuration for connecting to Control/Compact/FlexLogix Series




Communication driver

AB Control/CompactLogix

| PLC | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Series | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| Control/Compact/ FlexLogix | RS-232 | 1747-CP3*1<br>1756-CP3*1<br>or<br>User preparing RS232 connection diagram 4) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 GOT for 1 PLC |
| | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Allen-Bradley product manufactured by Rockwell Automation, Inc. For details of the product, contact Rockwell Automation, Inc.

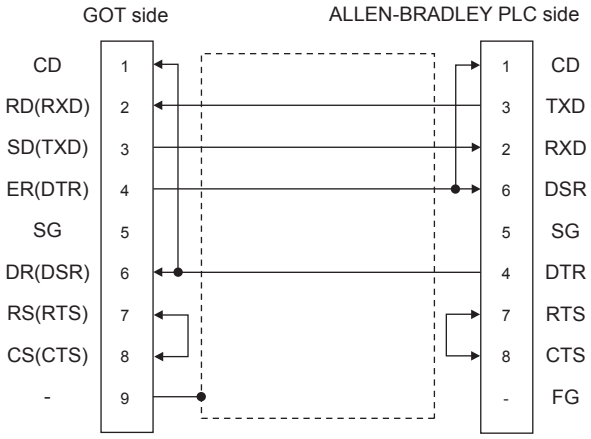
## 10.2.4 Connection Diagram

The following diagram shows the connection between the GOT and the PLC.

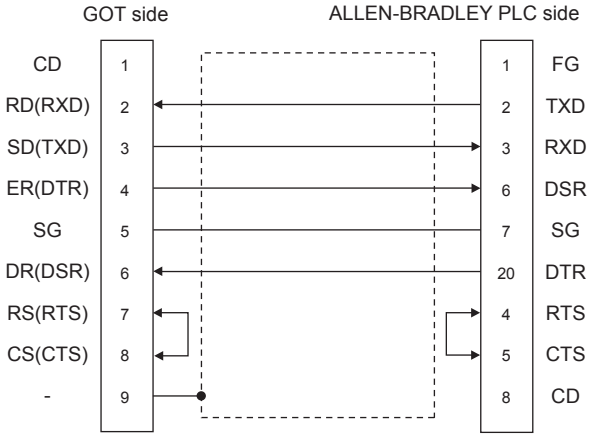
### ■ RS-232 cable

(1) Connection diagram

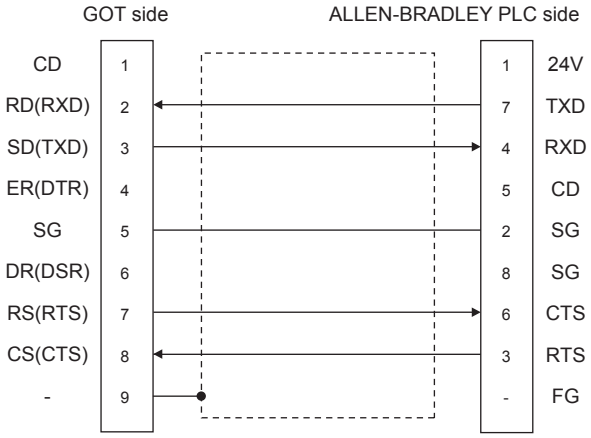
RS232 connection diagram 1)


GOT side
ALLEN-BRADLEY PLC side
CD 1 — 1 CD
RD(RXD) 2 — 3 TXD
SD(TXD) 3 — 2 RXD
ER(DTR) 4 — 6 DSR
SG 5 — 5 SG
DR(DSR) 6 — 4 DTR
RS(RTS) 7 — 7 RTS
CS(CTS) 8 — 8 CTS
- 9 — - FG

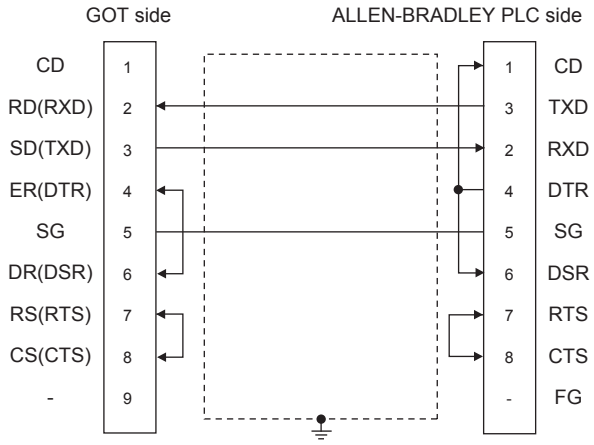
RS232 connection diagram 2)


GOT side
ALLEN-BRADLEY PLC side
CD 1 — 1 FG
RD(RXD) 2 — 2 TXD
SD(TXD) 3 — 3 RXD
ER(DTR) 4 — 6 DSR
SG 5 — 7 SG
DR(DSR) 6 — 20 DTR
RS(RTS) 7 — 4 RTS
CS(CTS) 8 — 5 CTS
- 9 — 8 CD

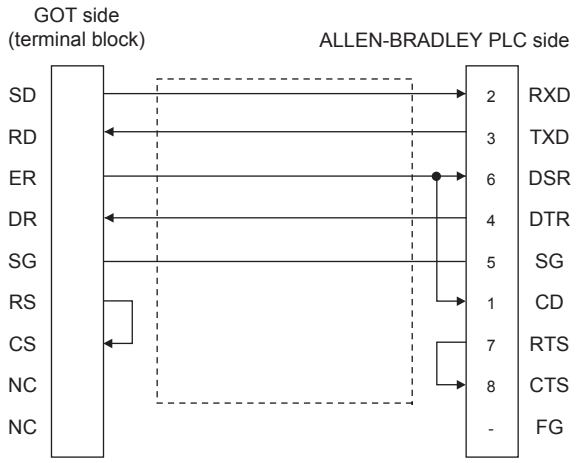
RS232 connection diagram 3)


GOT side
ALLEN-BRADLEY PLC side
CD 1 — 1 24V
RD(RXD) 2 — 7 TXD
SD(TXD) 3 — 4 RXD
ER(DTR) 4 — 5 CD
SG 5 — 2 SG
DR(DSR) 6 — 8 SG
RS(RTS) 7 — 6 CTS
CS(CTS) 8 — 3 RTS
- 9 — - FG

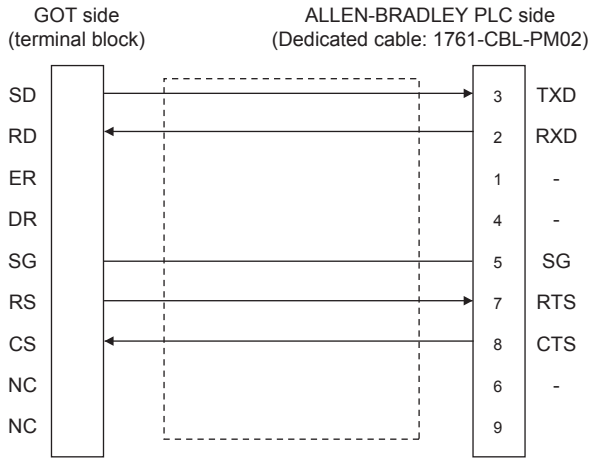
RS232 connection diagram 4)


GOT side
ALLEN-BRADLEY PLC side
CD 1 — 1 CD
RD(RXD) 2 — 3 TXD
SD(TXD) 3 — 2 RXD
ER(DTR) 4 — 4 DTR
SG 5 — 5 SG
DR(DSR) 6 — 6 DSR
RS(RTS) 7 — 7 RTS
CS(CTS) 8 — 8 CTS
- 9 — - FG

RS232 connection diagram 5)




RS232 connection diagram 6)



(2) Precautions when preparing a cable

(a) Cable length
The length of the RS-232 cable must be 15m or less.

(b) GOT side connector
For the GOT side connector, refer to the following.

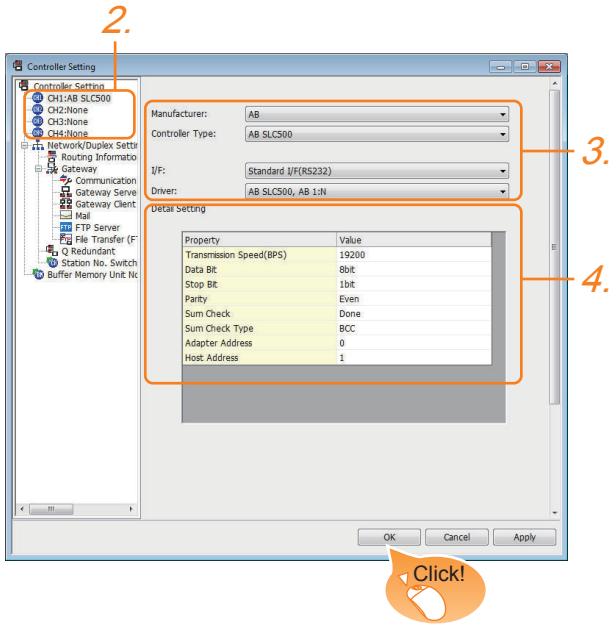
☞ 1.4.1 GOT connector specifications

(c) ALLEN-BRADLEY PLC side connector
Use the connector compatible with the ALLEN-BRADLEY PLC side module.
For details, refer to the ALLEN-BRADLEY PLC user's manual.

## 10.2.5 GOT Side Settings

### ■ Setting communication interface (Communication settings)

Set the channel of the connected equipment.




1. Select [Common] → [Controller Setting] from the menu.
2. The Controller Setting window is displayed. Select the channel to be used from the list menu.
3. Set the following items.
   - Manufacturer: AB
   - Controller Type: Set either of the followings.
     - AB SLC500
     - AB MicroLogix
     - AB Control/CompactLogix
   - I/F: Interface to be used
   - Driver: Set either of the followings.
     - AB SLC500, AB 1:N
     - AB MicroLogix
     - AB Control/CompactLogix
4. The detailed setting is displayed after Manufacturer, Controller Type, I/F, and Driver are set.
   Make the settings according to the usage environment.
   ☞ 10.2.5 ■ Communication detail settings

Click the [OK] button when settings are completed.

**POINT**

The settings of connecting equipment can be confirmed in [I/F Communication Setting].
For details, refer to the following.
☞ 1.1.2 I/F communication setting

### ■ Communication detail settings

(1) AB SLC500, AB 1: Ns

| Property | Value |
|---|---|
| Transmission Speed(BPS) | 19200 |
| Data Bit | 8 bit |
| Stop Bit | 1 bit |
| Parity | Even |
| Sum Check | Done |
| Sum Check Type | BCC |
| Adapter Address | 0 |
| Host Address | 1 |

| Item | Description | Range |
|---|---|---|
| Transmission Speed | Set this item when change the transmission speed used for communication with the connected equipment. (Default: 19200bps) | 4800bps, 9600bps, 19200bps |
| Adapter Address*1 | Specify the adapter address (station No. of the PLC that the GOT will monitor) in the connected network. (Default: 0) | 0 to 31 |
| Host Address*1 | Specify the host address (station No. of the adapter to which the GOT is connected) in the connected network. (Default: 1) | 1 to 31 |

*1 Do not specify the same value for the adapter address and host address.

(2) AB MicroLogix

| Property | Value |
|---|---|
| Transmission Speed(BPS) | 19200 |
| Data Bit | 8 bit |
| Stop Bit | 1 bit |
| Parity | None |
| Sum Check | Done |
| Sum Check Type | BCC |
| Adapter Address | 0 |
| Host Address | 1 |

| Item | Description | Range |
|---|---|---|
| Transmission Speed | Set this item when change the transmission speed used for communication with the connected equipment. (Default: 19200bps) | 4800bps, 9600bps, 19200bps, 38400bps |
| Sum Check Type | Specify the format in which the sum check is performed during communication when performing sum check. (Default: BCC) | BCC, CRC16 |
| Adapter Address*1 | Specify the adapter address (station No. of the PLC that the GOT will monitor) in the connected network. (Default: 0) | 0 to 63 |
| Host Address*1 | Specify the host address (station No. of the adapter to which the GOT is connected) in the connected network. (Default: 1) | 0 to 63 |

*1 Do not specify the same value for the adapter address and host address.

(3) AB Control/CompactLogix

| Property | Value |
|---|---|
| Transmission Speed(BPS) | 19200 |
| Data Bit | 8 bit |
| Stop Bit | 1 bit |
| Parity | None |
| Sum Check Type | BCC |
| Retry(Times) | 3 |
| Timeout Time(Sec) | 3 |
| Adapter Address | 0 |
| Host Address | 0 |
| Delay Time(ms) | 0 |

| Item | Description | Range |
|---|---|---|
| Transmission Speed | Set this item when change the transmission speed used for communication with the connected equipment.<br>(Default: 19200bps) | 9600bps,<br>19200bps,<br>38400bps,<br>57600bps<br>115200bps |
| Data Bit | Set this item when change the data length used for communication with the connected equipment.<br>(Default: 8bits) | 7bits/8bits |
| Stop Bit | Specify the stop bit length for communications.<br>(Default: 1bit) | 1bit/2bits |
| Parity | Specify whether or not to perform a parity check, and how it is performed during communication.<br>(Default: None) | None<br>Even<br>Odd |
| Sum Check Type | Specify the format in which the sum check is performed during communication when performing sum check.<br>(Default: BCC) | BCC,<br>CRC16 |
| Retry | Set the number of retries to be performed when a communication error occurs.<br>(Default: 3times) | 0 to 5times |
| Timeout Time | Set the time period for a communication to time out.<br>(Default: 3sec) | 3 to 30sec |
| Adapter Address | Specify the adapter address (station No. of the PLC that the GOT will monitor) in the connected network.<br>(Default: 0) | 0 to 254 |
| Host Address | Specify the host address (station No. of the adapter to which the GOT is connected) in the connected network.<br>(Default: 0) | 0 to 254 |
| Delay Time | Set this item to adjust the transmission timing of the communication request from the GOT.<br>(Default: 0ms) | 0 to 300ms |

**POINT**

(1) Communication interface setting by the Utility
The communication interface setting can be changed on the Utility's [Communication setting] after writing [Communication Settings] of project data.
For details on the Utility, refer to the following manual.
☞ GOT2000 Series User's Manual (Utility)

(2) Precedence in communication settings
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

## 10.2.6 PLC Side Setting

**POINT**

ALLEN-BRADLEY PLC

For details of ALLEN-BRADLEY PLCs, refer to the following manuals.

☞ ALLEN-BRADLEY PLC user's Manual

### ■ Directly connecting to the CPU

| Item | Setting details | | |
|---|---|---|---|
| | SLC500 Series | MicroLogix 1000/1200/ 1500 Series | Control/ Compact/ FlexLogix Series |
| Baud Rate*1 | 4800bps, 9600bps, 19200bps | 4800bps, 9600bps, 19200bps, 38400bps | 4800bps, 9600bps, 19200bps, 38400bps |
| Parity | EVEN | NONE | NONE |
| Control Line | NO HANDSHAKING | | |
| Communication Driver | DF1 HALF-DUPLEX SLAVE | | |
| Duplicate Packet Detection | DISABLE | | |
| Station Address | 0 | | |
| Error Detection | BCC | BCC, CRC*2 | BCC, CRC*2 |

*1 Set the Baud Rate according to the transmission speed setting on the GOT side.
For the transmission speed setting on the GOT side, refer to the following.
☞ 10.2.5 ■ Communication detail settings

*2 Set the Error Detection according to the sum check format setting on the GOT side.
For the sum check format setting on the GOT side, refer to the following.
☞ 10.2.5 ■ Communication detail settings

### ■ Connecting to DH485 network via adapter (1770-KF3) (Setting of Adapter)

| Item | Setting details |
|---|---|
| Baud Rate*1 | 4800bps, 9600bps, 19200bps |
| Parity | Even |
| Flow Control | Disable (No Handshaking) |
| DF1 Device Category | DF1 half-duplex slave, local mode |
| Error Detection*2 | BCC |
| DH-485 Baud Rate | 19200bps |
| Maximum Node Address | 1 to 31*3 |
| DH-485 Node Address | 0 to 31*4 |

*1 Set the Baud Rate according to the transmission speed setting on the GOT side.
For the transmission speed setting on the GOT side, refer to the following.
☞ 10.2.5 ■ Communication detail settings

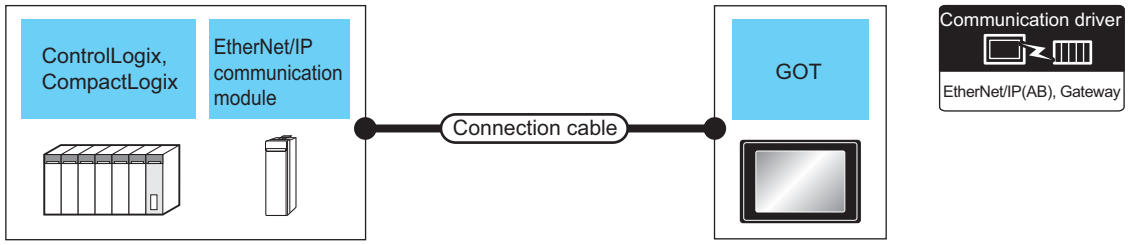
*2 Set the Error Detection according to the sum check format setting on the GOT side.
For the sum check format setting on the GOT side, refer to the following.
☞ 10.2.5 ■ Communication detail settings

*3 For the Maximum Node Address, set the same address as the Maximum Node Address on the DH-485 network.

*4 Set the DH-485 Node Address according to the Host Address on the GOT side.
Set a unique DH-485 Node Address so that it does not conflict with the Node Address of the PLC CPU on the DH-485 network.
For the Host Address setting on the GOT side, refer to the following.
☞ 10.2.5 ■ Communication detail settings

# 10.3 Ethernet Connection

## 10.3.1 System configuration for connecting to ControlLogix or CompactLogix (Ethernet connection type: EtherNet/IP (AB))




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Series | EtherNet/IP communication module*1 | Communication Type | Cable model*2 | Maximum segment length*3 | Option device | Model*4 | |
| ControlLogix | 1756-ENET(10Mbps)*4<br>1756-ENBT(10/100Mbps)*4<br>1756-EN2TR(10/100Mbps)*4 | Ethernet | • 10BASE-T<br>Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 5 or higher<br>• 100BASE-TX<br>Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 3 or higher | 100m | - (Built into GOT) | GT27 GT25 GT23 | *7 |
| CompactLogix | - | Ethernet | | 100m | - (Built into GOT) | GT27 GT25 GT23 | When PLC:GOT is N:1<br>TCP: 128 PLCs or less for 1 GOT<br><br>When PLC:GOT is 1:N<br>TCP: 32 GOTs or less (recommended to 16 or less) for 1 PLC |

*1 Allen-Bradley product manufactured by Rockwell Automation, Inc. For details of the product, contact Rockwell Automation, Inc.

*2 The destination connected with the twisted pair cable varies with the configuration of the applicable Ethernet network system. Connect to the Ethernet module, hub, transceiver or other system equipment corresponding to the applicable Ethernet network system.
Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standards.

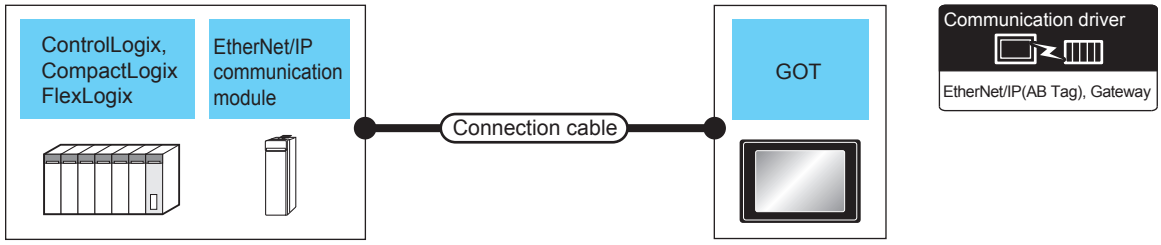
*3 A length between a hub and a node.
The maximum distance differs depending on the Ethernet device to be used.
The following shows the number of the connectable nodes when a repeater hub is used.
- 10BASE-T: Max. 4 nodes for a cascade connection (500m)
- 100BASE-TX: Max. 2 nodes for a cascade connection (205m)

When switching hubs are used, the cascade connection between the switching hubs has no logical limit for the number of cascades. For the limit, contact the switching hub manufacturer.

*4 The connectable EtherNet/IP communication module differs depending on the PLC series.
(ControlLogix5550/5555/5560)
1756-ENET(10Mbps), 1756-ENBT(10/100Mbps)
(ControlLogix5570)
1756-EN2TR(10/100Mbps)

*5 The number of the connectable GOTs for 1 PLC differs depending on the PLC series.
(ControlLogix5550/5555/5560)
- When PLC:GOT is N:1, the following number of the PLCs can be connected to 1 GOT.
  TCP: 128 or less
  When PLC:GOT is 1:N, the following number of the GOTs can be connected to 1 PLC.
  TCP: 64 or less (recommended to 16 or less)
  (ControlLogix5570)
- When PLC:GOT is N:1, the following number of the PLCs can be connected to 1 GOT.
  TCP: 128 or less
  When PLC:GOT is 1:N, the following number of the GOTs can be connected to 1 PLC.
  TCP: 128 or less (recommended to 16 or less)

## 10.3.2 System configuration for connecting to ControlLogix, CompactLogix or FlexLogix (Ethernet connection type: EtherNet/IP (AB Tag))




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Series | EtherNet/IP communication module*1 | Communication Type | Cable model*2 | Maximum segment length*3 | Option device | Model | |
| ControlLogix | 1756-ENET (10Mbps)*4<br>1756-ENBT (10/100Mbps)*4 | Ethernet | • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 5 or higher<br>• 100BASE-TX Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 3 or higher | 100m | - (Built into GOT) | GT27 GT25 GT23 | When PLC:GOT is N:1<br>TCP: 16 PLCs or less for 1 GOT<br><br>When PLC:GOT is 1:N<br>TCP: 32 GOTs or less (recommended to 16 or less) for 1 PLC |
| CompactLogix | - | Ethernet | | 100m | - (Built into GOT) | GT27 GT25 GT23 | When PLC:GOT is N:1<br>TCP: 16 PLCs or less for 1 GOT<br><br>When PLC:GOT is 1:N<br>TCP: 20 GOTs or less (recommended to 16 or less) for 1 PLC |
| FlexLogix | 1788-ENBT/A | Ethernet | | 100m | - (Built into GOT) | GT27 GT25 GT23 | When PLC:GOT is N:1<br>TCP: 16 PLCs or less for 1 GOT<br><br>When PLC:GOT is 1:N<br>TCP: 20 GOTs or less (recommended to 16 or less) for 1 PLC |

*1 Allen-Bradley product manufactured by Rockwell Automation, Inc. For details of the product, contact Rockwell Automation, Inc.

*2 The destination connected with the twisted pair cable varies with the configuration of the applicable Ethernet network system.
Connect to the Ethernet module, hub, transceiver or other system equipment corresponding to the applicable Ethernet network system.
Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standards.

*3 A length between a hub and a node.
The maximum distance differs depending on the Ethernet device to be used.
The following shows the number of the connectable nodes when a repeater hub is used.
- 10BASE-T: Max. 4 nodes for a cascade connection (500m)
- 100BASE-TX: Max. 2 nodes for a cascade connection (205m)

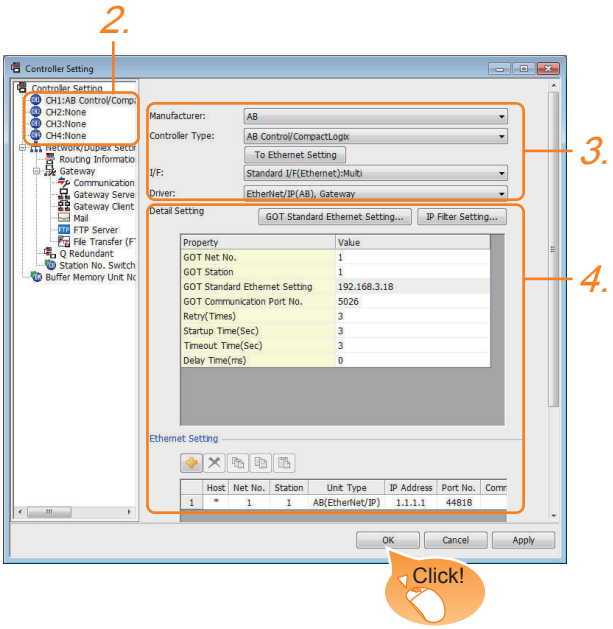
When switching hubs are used, the cascade connection between the switching hubs has no logical limit for the number of cascades.
For the limit, contact the switching hub manufacturer.

*4 The connectable EtherNet/IP communication module differs depending on the PLC series.
(ControlLogix5550/5555/5560)
1756-ENET (10Mbps), 1756-ENBT (10/100Mbps)
(ControlLogix5570)
1756-EN2TR (10/100Mbps)

## 10.3.3 GOT Side Settings

### ■ Setting communication interface (Communication settings)

Set the channel of the connected equipment.




1. Select [Common] → [Controller Setting] from the menu.
2. The Controller Setting window is displayed. Select the channel to be used from the list menu.
3. Set the following items.
   - Manufacturer: AB
   - Controller Type: Depends on Ethernet connection type.
     EtherNet/IP (AB): AB Control/CompactLogix
     EtherNet/IP (AB Tag): AB Control/CompactLogix (Tag)
   - I/F: Interface to be used
   - Driver: Depends on Ethernet connection type.
     EtherNet/IP (AB): EtherNet/IP (AB), Gateway
     EtherNet/IP (AB Tag): EtherNet/IP (AB Tag), Gateway
4. The detailed setting is displayed after Manufacturer, Controller Type, I/F, and Driver are set.
   Make the settings according to the usage environment.

   ☞ ■ Communication detail settings

Click the [OK] button when settings are completed.

**POINT**

The settings of connecting equipment can be confirmed in [I/F Communication Setting].
For details, refer to the following.

☞ 1.1.2 I/F communication setting

### ■ Communication detail settings

Make the settings according to the usage environment.

| Property | Value |
|---|---|
| GOT Net No. | 1 |
| GOT Station | 1 |
| GOT Ethernet Setting | 192.168.3.18 |
| GOT Communication Port No. | 5026 |
| Retry(Times) | 3 |
| Startup Time(Sec) | 3 |
| Timeout Time(Sec) | 3 |
| Delay Time(ms) | 0 |

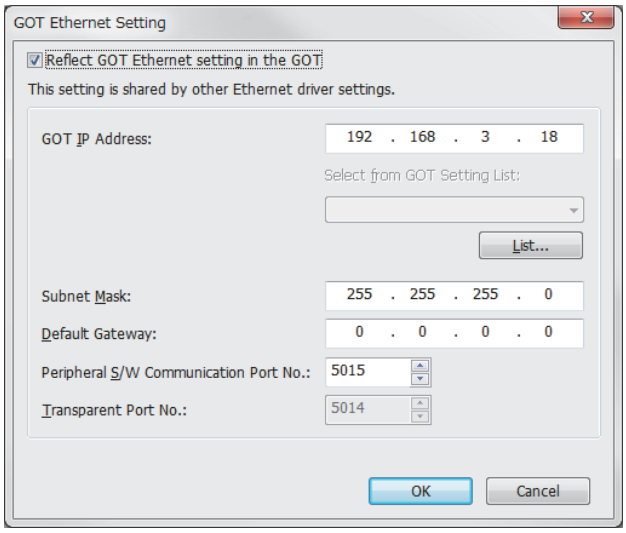
| Item | Description | Range |
|---|---|---|
| GOT Net No. | Set the network No. of the GOT. (Default: 1) | 1 to 239 |
| GOT Station*1 | Set the station No. of the GOT. (Default: 1) | 1 to 64 |
| GOT Ethernet Setting | Set the GOT IP address, subnet mask, default gateway, peripheral S/W communication port No., transparent port No. | ☞ GOT Ethernet setting |
| GOT Communication Port No. | Set the GOT port No. for the connection with the Ethernet module. (Default: 5026*2) | 1024 to 5010, 5014 to 65534 (Except for 5011, 5012, 5013, 44818 and 49153) |
| Retry | Set the number of retries to be performed when a communication timeout occurs. When receiving no response after retries, the communication times out. (Default: 3times) | 0 to 5times |
| Startup Time | Specify the time period from the GOT startup until GOT starts the communication with the PLC CPU. (Default: 3sec) | 1 to 255sec |
| Timeout Time | Set the time period for a communication to time out. (Default: 3sec) | 3 to 90sec |
| Delay Time | Set the delay time for reducing the load of the network/destination PLC. (Default: 0ms) | 0 to 10000 (ms) |

*1 Each of [GOT Station] set in the communication detail setting and [Station] set in the Ethernet setting must be set to different station numbers.

☞ ■ Ethernet setting

*2 A default is 5028 when communication drivers are [EtherNet/IP (AB Tag) , Gateway].

## ■ GOT Ethernet setting

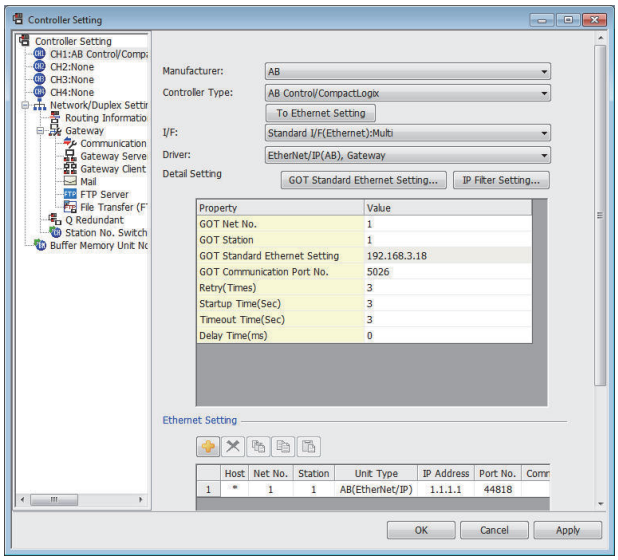



| Item | Description | Range |
|---|---|---|
| GOT IP Address | Set the IP address of the GOT.<br>(Default: 192.168.0.18) | 0.0.0.0 to 255.255.255.255 |
| Subnet Mask | Set the subnet mask for the sub network.(Only for connection via router)<br>If the sub network is not used, the default value is set.<br>(Default: 255.255.255.0) | 0.0.0.0 to 255.255.255.255 |
| Default Gateway | Set the router address of the default gateway where the GOT is connected.(Only for connection via router)<br>(Default: 0.0.0.0) | 0.0.0.0 to 255.255.255.255 |
| Peripheral S/W Communication Port No. | Set the GOT port No. for the S/W communication.<br>(Default: 5015) | 1024 to 5010, 5014 to 65534 (Except for 5011, 5012, 5013 and 49153) |
| Transparent Port No. | Set the GOT port No. for the transparent function.<br>(Default: 5014) | 1024 to 5010, 5014 to 65534 (Except for 5011, 5012, 5013 and 49153) |

## ■ Ethernet setting

(1) Ethernet connection type: EtherNet/IP (AB)

This section describes the Ethernet setting for the communication driver AB Control/CompactLogix.



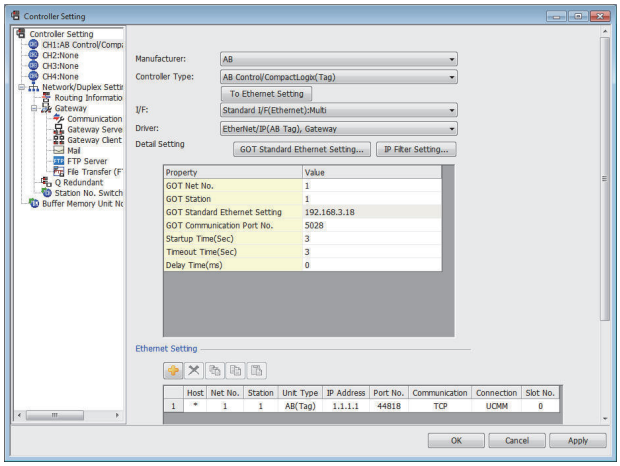

| Item | Description | Set value |
|---|---|---|
| Host | The host is displayed.(The host is indicated with an asterisk (*).) | — |
| Net No. | Set the network No. of the connected Ethernet module.<br>(Default: blank) | 1 to 239 |
| Station*1 | Set the station No. of the connected Ethernet module.<br>(Default: blank) | 1 to 64 |
| Type | AB(EtherNet/IP) (fixed) | AB(EtherNet/IP) (fixed) |
| IP address | Set the IP address of the connected Ethernet module.<br>(Default: blank) | PLC side IP address |
| Port No. | 44818 (fixed) | 44818 (fixed) |
| Communication format | TCP (fixed) | TCP (fixed) |
| Slot No. | Set the slot No. of the PLC to which the Ethernet module is connected.<br>(Default: blank) | 0 to 16 |

*1 Each of [GOT Station] set in the communication detail setting and [Station] set in the Ethernet setting must be set to different station numbers.

■ Communication detail settings

(2) Ethernet connection type: EtherNet/IP (AB Tag)

This section describes the Ethernet setting for the communication driver AB Control/CompactLogix (Tag).




| Item | Description | Range |
|---|---|---|
| Host | The host is displayed. (The host is indicated with an asterisk (*).) | — |
| N/W No. | Set the network No. of the connected Ethernet module. (Default: blank) | 1 to 239 |
| Station*1 | Set the station No. of the connected Ethernet module. (Default: blank) | 1 to 64 |
| Type | AB (Tag) (fixed) | AB (Tag) (fixed) |
| IP Address | Set the IP address of the connected Ethernet module. (Default: blank) | PLC side IP address |
| Port No. | 44818 (fixed) | 44818 (fixed) |
| Communication | TCP (fixed) | TCP (fixed) |
| Connection | Connection setup (Default: UCMM) | UCMM Class3 |
| Slot No. | Set the slot No. of the PLC to which the Ethernet module is connected. (Default: blank) | 0 to 20 |

*1 Each of [GOT Station] set in the communication detail setting and [Station] set in the Ethernet setting must be set to different station numbers.

■ Communication detail settings

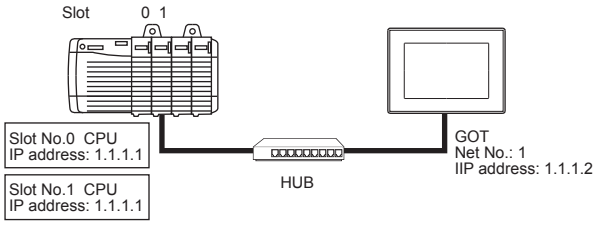
**POINT**

Ethernet setting for the multiple CPU system configuration

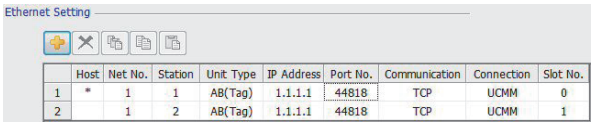
When Ethernet connection type is EtherNet/IP (AB Tag), even if the device has the same IP address in the Ethernet setting, the GOT can monitor in the multiple CPU system configuration by setting different slot Nos.

See the Ethernet setting in the following system configuration.

(Example of system configuration)




(Example of Ethernet setting)




In the above mentioned Ethernet setting, the GOT monitors the CPU as follows.

- When [Net No.]: 1 and [Station No.]: 1 are set for an object, the GOT monitors the CPU whose slot No. is 0.
- When [Net No.]: 1 and [Station No.]: 2 are set for an object, the GOT monitors the CPU whose slot No. is 1.

POINT

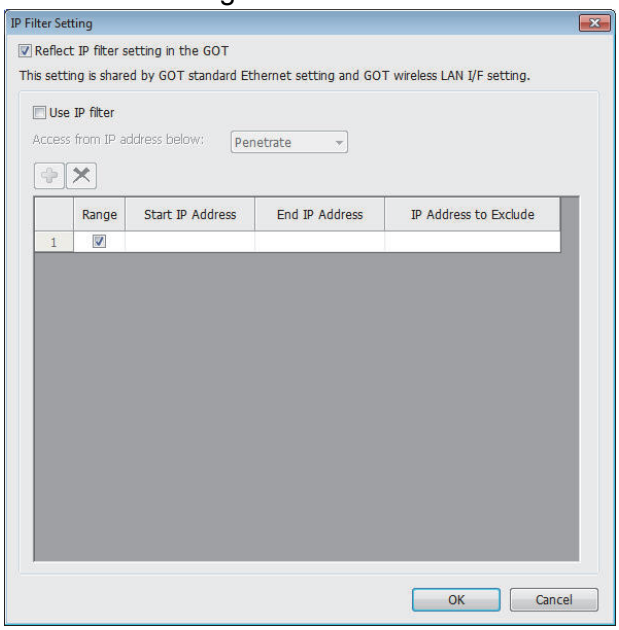
(1) Communication interface setting by the Utility
The communication interface setting can be changed on the Utility's [Communication setting] after writing [Communication Settings] of project data.
For details on the Utility, refer to the following manual.

☞ GOT2000 Series User's Manual (Utility)

(2) Precedence in communication settings
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

(3) Setting IP address and port No
The same IP address cannot be set for the same port No.The same IP address can be set for the different port No.

### ■ IP Filter Setting




To improve security, the GOT 2000 series supports the IP Filter Setting.
For details on the IP Filter Setting, refer to the following manual.

☞ GT Designer3 (GOT2000) Help

## 10.3.4 PLC side setting

POINT

ALLEN-BRADLEY PLC
For details of ALLEN-BRADLEY PLCs, refer to the following manuals.

☞ ALLEN-BRADLEY PLC user's Manual

### ■ Parameter setting

Set the following parameters with the software package manufactured by the Allen-Bradley.

| Item | Setting details |
|---|---|
| Name | Sets the name. |
| IP Address | IP address of the connected module*1 |
| Slot | Slots No. for installing the EtherNet/IP communication module |

*1 For the IP address, make the same setting as that of each Ethernet module set on GT Designer3.
Do not set the same IP Address as those of GOT and controller on the Ethernet network.
For the address setting on GT Designer3, refer to the following.

☞ 10.3.3 ■ Communication detail settings

## 10.3.5 Precautions

### ■ When setting IP address

Do not use "0" and "255" at the end of an IP address. (Numbers of *.*.*.0 and *.*.*.255 are used by the system.)
The GOT may not monitor the controller correctly with the above numbers.
Consult with the administrator of the network before setting an IP address to the GOT and controller.

### ■ When connecting to multiple GOTs

(1) Setting Station
When connecting two or more GOTs in the Ethernet network, set each [Station] to the GOT.

☞ 10.3.3 ■Ethernet setting

(2) Setting IP address
Do not use the IP address "192.168.3.18" when using multiple GOTs.
A communication error may occur on the GOT with the IP address.

### ■ When connecting to the multiple network equipment (including GOT) in a segment

By increasing the network load, the transmission speed between the GOT and PLC may be reduced.
The following actions may improve the communication performance.
• Using a switching hub
• More high speed by 100BASE-TX (100Mbps)Reduction of the monitoring points on GOT

# 10.4 Device Range that Can Be Set

The device ranges of controller that can be used for GOT are as follows.

Note that the device ranges in the following tables are the maximum values that can be set in GT Designer3.

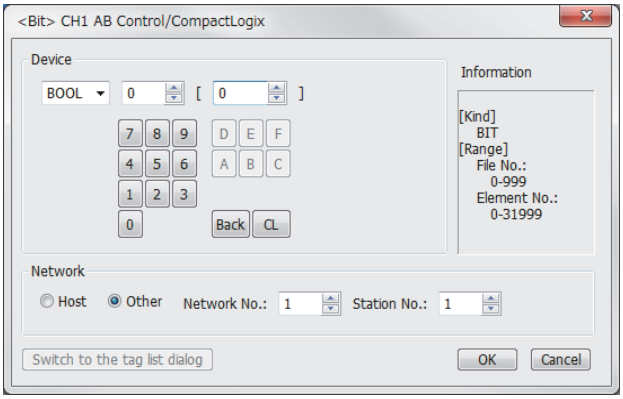
The device specifications of controllers may differ depending on the models, even though belonging to the same series.

Please make the setting according to the specifications of the controller actually used.

When a non-existent device or a device number outside the range is set, other objects with correct device settings may not be monitored.

## ■ Setting item

(1) AB Control/CompactLogix




| Item | Description | |
|---|---|---|
| Device | Set the device name, file number, element number, and bit number.<br>The bit number can be set only when specifying the bit of word device. | |
| Information | Displays the device type and setting range which are selected in [Device]. | |
| Network | Set the station number of the PLC connected to the specified device. | |
| | Host | Select this item when monitoring the host PLC. |
| | Other | Select this when monitoring the other PLCs.<br>After selecting, set the station number of the PLC to be monitored.<br>NWNo.: Set the network No.<br>Station No.: Set the station No. |
| Switch to the tag list dialog | Select this button to importing the tag file created by RSLogix5000 and set devices while checking the tag names.<br>For how to import tag files, refer to the following.<br>GT Designer3 (GOT2000) Help | |

**POINT**

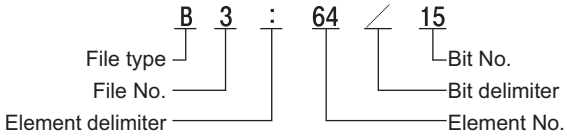
Device settings of ALLEN-BRADLEY PLC

The ALLEN-BRADLEY PLC device addressing consists of a file and element.

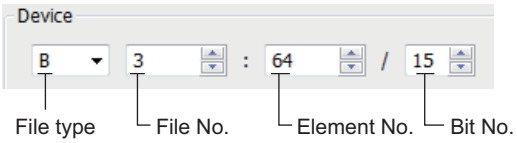
Make setting as follows using GT Designer3.

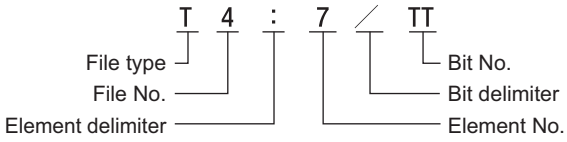
(1) AB SLC500, AB Micro Logix

(a) When setting a bit address as a bit device

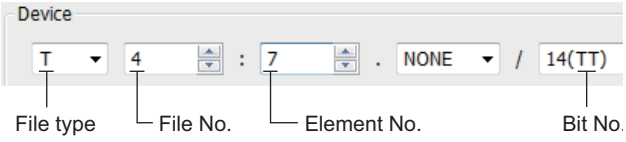



· Setting by GT Designer3

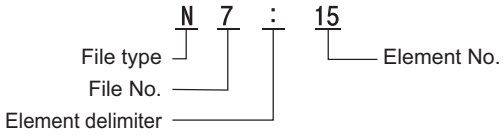



· Setting by GT Designer3

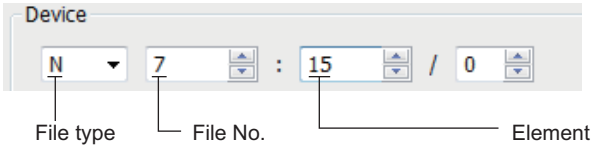


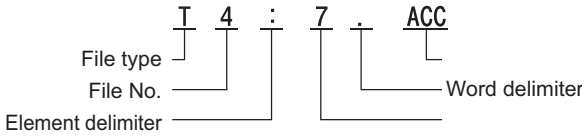
(b) When setting an element address as a word device




↓

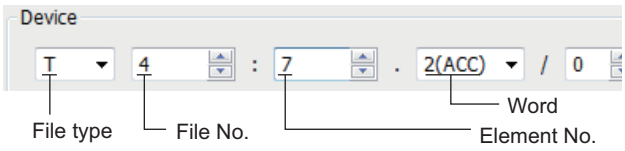
· Setting by GT Designer3



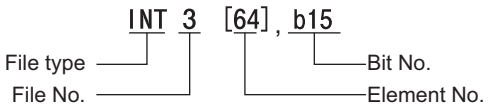

↓

· Setting by GT Designer3



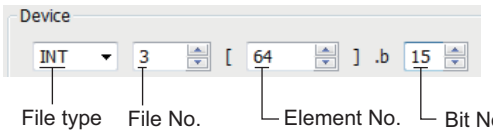

(2) AB Control/CompactLogix

(a) When setting a bit address as a bit device

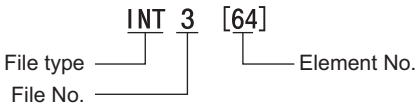



↓

· Setting by GT Designer3




(b) When setting an element address as a word device

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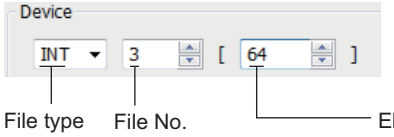
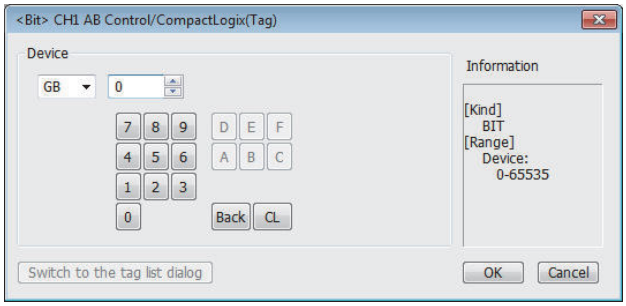
· Setting by GT Designer3




(2) AB Control/CompactLogix (Tag)




| Item | Description |
|---|---|
| Device | Set the GOT internal device name and device number.<br>Click [Switch to the tag list dialog] to display the tag list screen, and then set devices in the PLC. |
| Information | Displays the device type and setting range which are selected in [Device]. |
| Switch to the tag list dialog | Select this button to importing the tag file created by RSLogix5000 and set devices while checking the tag names.<br>For how to import tag files, refer to the following.<br>GT Designer3 (GOT2000) Help |

## 10.4.1 AB SLC500

| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | Bit (B) | B3:0/0 to B3:255/15<br>B10:0/0 to B255:255/15 | Decimal |
| | Timer (Timing bit) (T)*2 | T4:0/14(TT) to T4:255/14(TT)<br>T10:0/14(TT) to T255:255/14(TT) | |
| | Timer (Timing bit) (T)*2 | T4:0/13(DN) to T4:255/13(DN)<br>T10:0/13(DN) to T255:255/13(DN) | |
| | Counter (Up counter) (C)*2 | C5:0/15(CU) to C5:255/15(CU)<br>C10:0/15(CU) to C255:255/15(CU) | |
| | Counter (Down counter) (C)*2 | C5:0/14(CD) to C5:255/14(CD)<br>C10:0/14(CD) to C255:255/14(CD) | |
| | Counter (Completion bit) (C) | C5:0/13(DN) to C5:255/13(DN)<br>C10:0/13(DN) toC255:255/13(DN) | |
| | Integer (N) | N7:0 to N7:255<br>N10:0 to N255:255 | |
| Word device | Bit (B)*3 | B3:0 to B3:255<br>B10:0 to B255:255 | Decimal |
| | Timer (Set value) (T)*1*2 | T4:0.1(PRE) to T4:255.1(PRE)<br>T10:0.1(PRE) to T255:255.1(PRE) | |
| | Timer (Current value) (T)*1*2 | T4:0.2(ACC) to T4:255.2(ACC)<br>T10:0.2(ACC) to T255:255.2(ACC) | |
| | Counter (Set value) (C)*1*2 | C5:0.1(PRE) to C5:255.1(PRE)<br>C10:0.1(PRE) to C255:255.1(PRE) | |
| | Counter (Current value) (C)*1*2 | C5:0.2(ACC) to C5:255.2(ACC)<br>C10:0.2(ACC) to C255:255.2(ACC) | |
| | Integer (N)*1 | N7:0 to N7:255<br>N10:0 to N255:255 | |

*1 Writing to device is not allowed for 32 bit data.
*2 Monitoring or writing is not possible in the continuous device designation mode.

## 10.4.2 AB MicroLogix Series

| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | Bit (B) | B3:0/0 to B255:255/15 | Decimal |
| | Timer (Timing bit) (T)*3 | T3:0/14(TT) to T255:255/14(TT) | |
| | Timer (Completion bit) (T)*3 | T3:0/13(DN) to T255:255/13(DN) | |
| | Counter (Up counter) (C)*3 | C3:0/15(CU) to C255:255/15(CU) | |
| | Counter (Down counter) (C)*3 | C3:0/14(CD) to C255:255/14(CD) | |
| | Counter (Completion bit) (C)*3 | C3:0/13(DN) to C255:255/13(DN) | |
| | Integer (N) | N3:0/0 to N255:255/15 | |
| Word device | Bit (B) | B3:0 to B255:255 | Decimal |
| | Timer (Set value) (T)*1*3 | T3:0.1(PRE) to T255:255.1(PRE) | |
| | Timer (Current value) (T)*1*3 | T3:0.2(ACC) to T255:255.2(ACC) | |
| | Counter (Set value) (C)*1*3 | C3:0.1(PRE) to C255:255.1(PRE) | |
| | Counter (Current value) (C)*1*3 | C3:0.2(ACC) to C255:255.2(ACC) | |
| | Integer (N)*1 | N3:0 to N255:255 | |
| Double word device | 32bit integer (L)*2 | L3:0 to L3:255<br>L255:0 to L255:255 | |

*1 Writing to device is not allowed for 32 bit data.
*2 Writing to device is not allowed for 16 bit data.
*3 Monitoring or writing is not possible in the continuous device designation mode.

## 10.4.3 AB MicroLogix Series (Device extended)

For details of this communication driver, please contact our company.

## 10.4.4 AB Control/CompactLogix

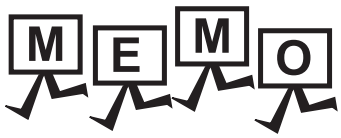
| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | BOOL | BOOL0[0] to BOOL999[31999] | Decimal |
| Word device | INT | INT0[0] to INT999[999] | Decimal |
| Double word device | DINT*1 | DINT0[0] to DINT999[999] | |
| | REAL*1 | REAL0[0] to REAL999[999] | |

*1 Only 32-bit (2-word) designation is allowed.

## 10.4.5 AB Control/CompactLogix (Tag)

Select this button to importing the tag file created by RSLogix5000 and set devices while checking the tag names.
For how to import tag files, refer to the following.

☞ GT Designer3 (GOT2000) Help


MEMO

# 11

# CONNECTION TO GE PLC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11.2 System Configuration . . . . . 11 - 3
11.3 Connection Diagram . . . . . 11 - 9
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11.7 Precautions . . . . . 11 - 15

# 11. CONNECTION TO GE PLC

## 11.1 Connectable Model List

The following table shows the connectable models.

| Series | Model name | Clock | Communication Type | Connectable model | Refer to |
|---|---|---|---|---|---|
| Series90-30 | IC693CPU311 | × | RS-232<br>RS-422 | GT27 GT25 GT23 | 11.2.1 |
| | IC693CPU313 | | | | |
| | IC693CPU323 | | | | |
| | IC693CPU350 | | | | |
| | IC693CPU360 | | | | |
| | IC693CPU363 | | | | |
| | IC693CPU366 | | | | |
| | IC693CPU367 | | | | |
| | IC693CPU374 | | | | |
| Series90-70 | IC697CPU731 | × | RS-232<br>RS-422 | GT27 GT25 GT23 | 11.2.2 |
| | IC697CPX772 | | | | |
| | IC697CPX782 | | | | |
| | IC697CPX928 | | | | |
| | IC697CPX935 | | | | |
| | IC697CPU780 | | | | |
| | IC697CGR772 | | | | |
| | IC697CGR935 | | | | |
| | IC697CPU788 | | | | |
| | IC697CPU789 | | | | |
| | IC697CPM790 | | | | |
| VersaMax Micro | IC200UAA003 | × | RS-232<br>RS-422 | GT27 GT25 GT23 | 11.2.3 |
| | IC200UAL004 | | | | |
| | IC200UAL005 | | | | |
| | IC200UAL006 | | | | |
| | IC200UAA007 | | | | |
| | IC200UAR028 | | | | |
| | IC200UDD110 | | | | |
| | IC200UDD120 | | | | |
| | IC200UDD212 | | | | |
| | IC200UDR005 | | | | |
| | IC200UDR006 | | | | |
| | IC200UDR010 | | | | |
| | IC200UDD064 | | | | |
| | IC200UDD164 | | | | |
| | IC200UDR164 | | | | |
| | IC200UDR064 | | | | |
| | IC200UAR014 | | | | |
| | IC200UDD104 | | | | |
| | IC200UDD112 | | | | |
| | IC200UDR001 | | | | |
| | IC200UDR002 | | | | |
| | IC200UDR003 | | | | |

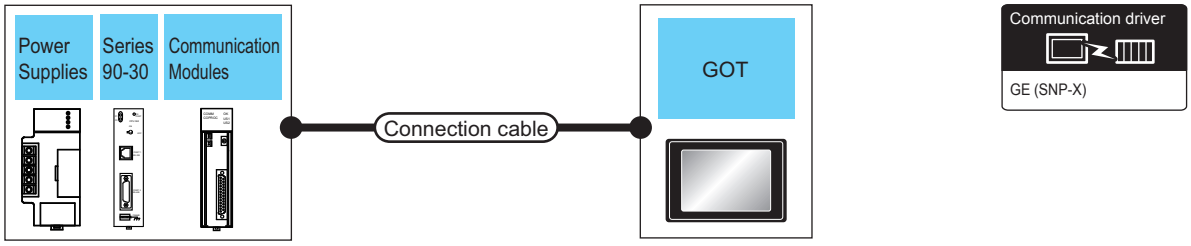
# 11.2 System Configuration

## 11.2.1 Connecting to Series90-30

**POINT**

Connectable model

Only the models that are compatible with SNP-X protocol can be connected.




■ For the RS-232 connection

| PLC | | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|
| Power Supplies*1 | Model name | Communication Modules*1 | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| IC693PWR321<br>IC693PWR330<br>IC693PWR331<br>IC693PWR332<br>IC693PWR328 | IC693CPU311<br>IC693CPU313<br>IC693CPU323 | IC693CMM311 | RS-232 | User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 PLC for 1 GOT |
| | | | | | | GT15-RS2-9P | GT27 GT25 | |
| IC693PWR321<br>IC693PWR330<br>IC693PWR331<br>IC693PWR332<br>IC693PWR328 | IC693CPU350<br>IC693CPU360<br>IC693CPU366<br>IC693CPU367<br>IC693CPU374 | IC693CMM311 | RS-232 | User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | | GT15-RS2-9P | GT27 GT25 | |
| IC693PWR321<br>IC693PWR330<br>IC693PWR331<br>IC693PWR332<br>IC693PWR328 | IC693CPU363 | IC693CMM311 | RS-232 | User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by GE Corporation.
For details of the product, contact GE Corporation.

■ For the RS-422 connection (connecting to the Communication Modules)

| PLC | | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|
| Power Supplies*1 | Model name | Communication Modules*1 | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| IC693PWR321<br>IC693PWR330<br>IC693PWR331<br>IC693PWR332<br>IC693PWR328 | IC693CPU311<br>IC693CPU313<br>IC693CPU323 | IC693CMM311 | RS-422 | User preparing RS-422 connection diagram 1) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | 8 PLCs for 1 GOT |
| | | | | | | GT15-RS4-9S | GT27 GT25 | |
| IC693PWR321<br>IC693PWR330<br>IC693PWR331<br>IC693PWR332<br>IC693PWR328 | IC693CPU350<br>IC693CPU360<br>IC693CPU366<br>IC693CPU367<br>IC693CPU374 | IC693CMM311 | RS-422 | User preparing RS-422 connection diagram 1) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | | GT15-RS4-9S | GT27 GT25 | |
| IC693PWR321<br>IC693PWR330<br>IC693PWR331<br>IC693PWR332<br>IC693PWR328 | IC693CPU363 | IC693CMM311 | RS-422 | User preparing RS-422 connection diagram 1) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | | GT15-RS4-9S | GT27 GT25 | |

*1 Product manufactured by GE Corporation.
For details of the product, contact GE Corporation.

## ■ For the RS-422 connection (connecting to the Power Supplies)

| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Power Supplies*1 | Model name | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| IC693PWR321<br>IC693PWR330<br>IC693PWR331<br>IC693PWR332<br>IC693PWR328 | IC693CPU350<br>IC693CPU360<br>IC693CPU366<br>IC693CPU367<br>IC693CPU374 | RS-422 | User preparing RS-422 connection diagram 2) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | 8 PLCs for 1 GOT |
| | | | | | GT15-RS4-9S | GT27 GT25 | |
| IC693PWR321<br>IC693PWR330<br>IC693PWR331<br>IC693PWR332<br>IC693PWR328 | IC693CPU363 | RS-422 | User preparing RS-422 connection diagram 2) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | GT15-RS4-9S | GT27 GT25 | |

*1 Product manufactured by GE Corporation.
For details of the product, contact GE Corporation.

## ■ For the RS-422 connection (connecting to the PLC)

| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Power Supplies*1 | Model name | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| IC693PWR321<br>IC693PWR330<br>IC693PWR331<br>IC693PWR332<br>IC693PWR328 | IC693CPU363 (CPU port 2) | RS-422 | User preparing RS-422 connection diagram 2) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | 8 PLC for 1 GOT |
| | | | | | GT15-RS4-9S | GT27 GT25 | |

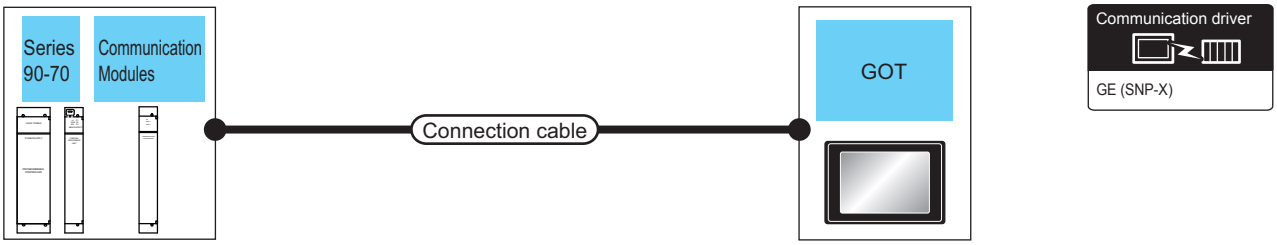
*1 Product manufactured by GE Corporation.
For details of the product, contact GE Corporation.

## 11.2.2 Connecting to Series90-70

**POINT**

Only the models that are compatible with SNP-X protocol can be connected.

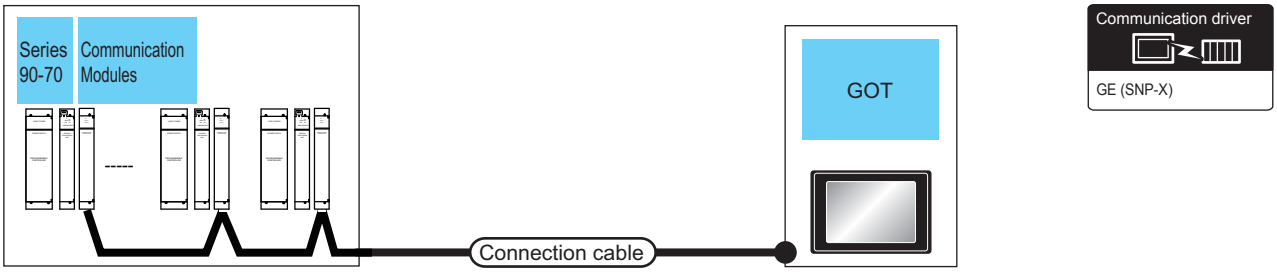
### ■ For the RS-232 connection




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Model name | Communication Modules*1 | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| IC697CPX772<br>IC697CPX782<br>IC697CPX928<br>IC697CPX935<br>IC697CPU780<br>IC697CPU788<br>IC697CPU789<br>IC697CPU731<br>IC697CGR772<br>IC697CGR935<br>IC697CPM790 | IC697CMM711 | RS-232 | User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 PLC for 1 GOT |
| | | | | | GT15-RS2-9P | GT27 GT25 | |

*1 Product manufactured by GE Corporation.
For details of the product, contact GE Corporation.

### ■ For the RS-422 connection




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| PLC | Communication Modules*1 | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| IC697CPX772<br>IC697CPX782<br>IC697CPX928<br>IC697CPX935<br>IC697CPU780<br>IC697CPU788<br>IC697CPU789<br>IC697CPU731<br>IC697CGR772<br>IC697CGR935<br>IC697CPM790 | IC697CMM711 | RS-422 | User preparing RS-422 connection diagram 1) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | Up to 8 PLCs for 1 GOT |
| | | | | | GT15-RS4-9S | GT27 GT25 | |

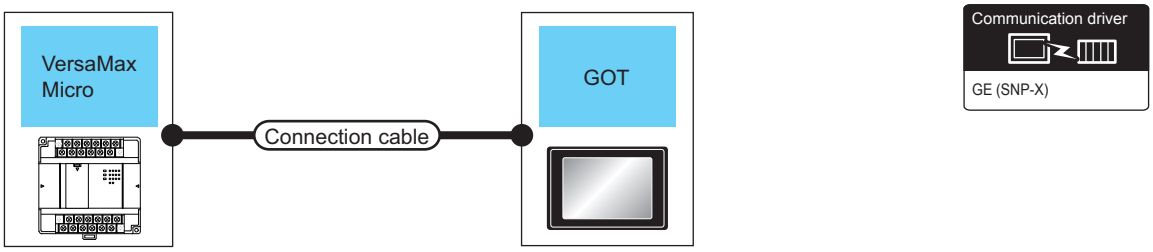
*1 Product manufactured by GE Corporation.
For details of the product, contact GE Corporation.
*2 Including the cable length of the option devices.
*3 Connect it to the RS-232 interface (built into GOT). It cannot be mounted on GT1655 and GT155□.

## 11.2.3 Connecting to VersaMax Micro

**POINT**

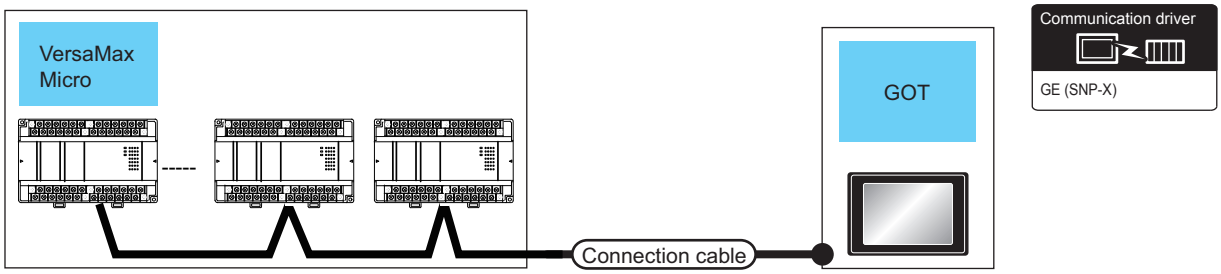
Only the models that are compatible with SNP-X protocol can be connected.

■ For the RS-232 connection




| PLC | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Model name | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| IC200UAA003<br>IC200UAR014<br>IC200UDD104<br>IC200UDD112<br>IC200UDR001<br>IC200UDR002<br>IC200UDR003 | RS-232 | User preparing RS-232 connection diagram 2) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 PLC for 1 GOT |
| | | | | GT15-RS2-9P | GT27 GT25 | |
| IC200UAL004<br>IC200UAL005<br>IC200UAL006<br>IC200UAA007<br>IC200UAR028<br>IC200UDD110<br>IC200UDD120<br>IC200UDD212<br>IC200UDR005<br>IC200UDR006<br>IC200UDR010<br>IC200UDD064<br>IC200UDD164<br>IC200UDR164<br>IC200UDR064 | RS-232 | User preparing RS-232 connection diagram 2) | 15m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | GT15-RS2-9P | GT27 GT25 | |

■ For the RS-422 connection




| PLC | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| PLC | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| IC200UAL004<br>IC200UAL005<br>IC200UAL006<br>IC200UAA007<br>IC200UAR028<br>IC200UDD110<br>IC200UDD120<br>IC200UDD212<br>IC200UDR005<br>IC200UDR006<br>IC200UDR010<br>IC200UDD064<br>IC200UDD164<br>IC200UDR164<br>IC200UDR064 | RS-422 | User preparing RS-422 connection diagram 3) | 1200m | - (Built into GOT) | GT27 GT25 GT23 | Up to 8 PLCs for 1 GOT |
| | | | | GT15-RS4-9S | GT27 GT25 | |

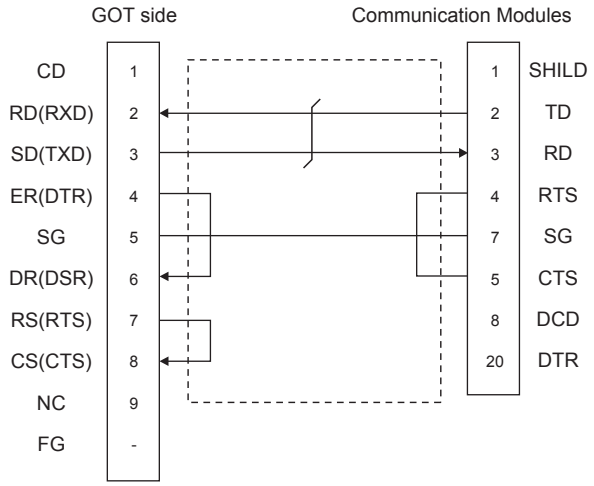
# 11.3 Connection Diagram

The following diagram shows the connection between the GOT and the PLC.

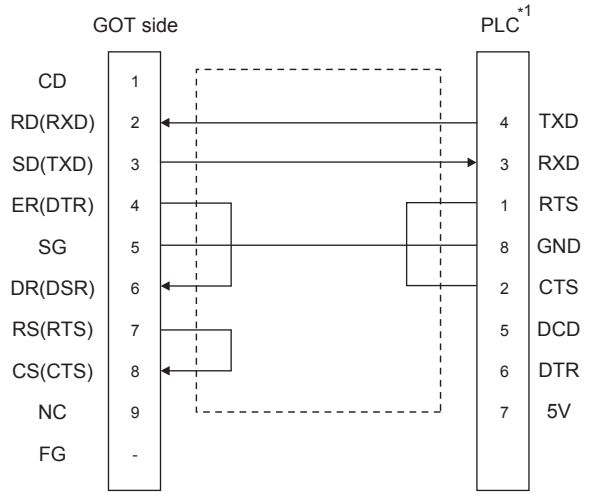
## 11.3.1 RS-232 cable

### ■ Connection diagram

(1) RS-232 connection diagram 1)




(2) RS-232 connection diagram 2)




*1 For details of the pin assignment, refer to the following manual.

GE PLC user's Manual

### ■ Precautions when preparing a cable

(3) Cable length

The length of the RS-232 cable must be 15m or less.

(4) GOT side connector

For the GOT side connector, refer to the following.

1.4.1 GOT connector specifications

(5) GE PLC side connector

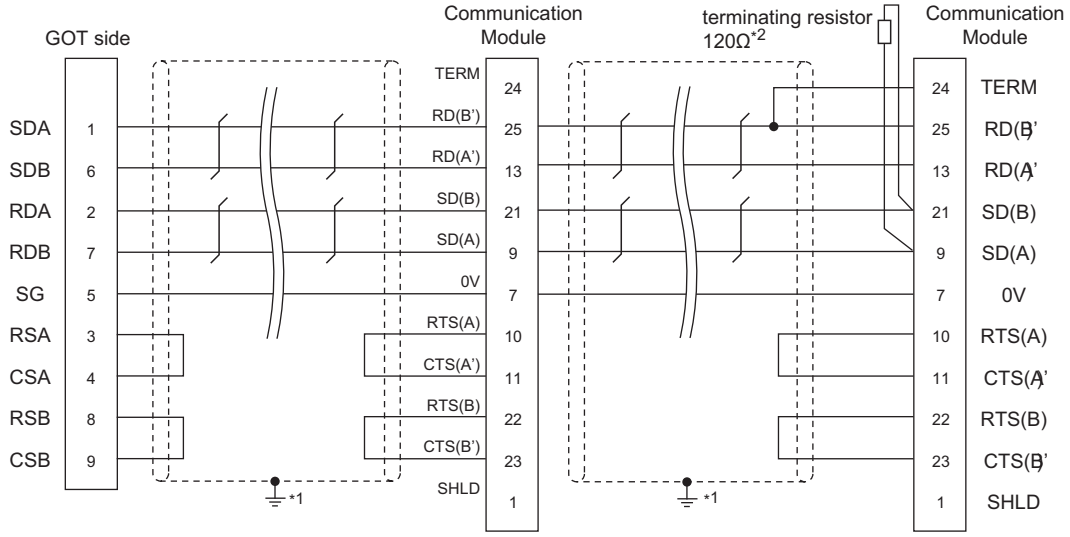
Use the connector compatible with the GE PLC side module.

For details, refer to the GE PLC user's manual.

## 11.3.2 RS-422 cable

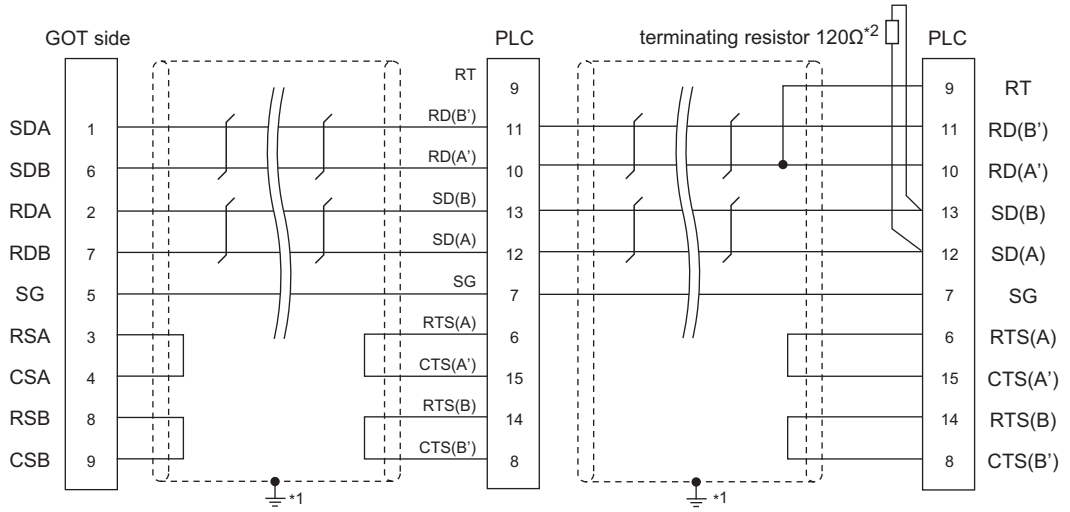
### ■ Connection diagram

(1) RS-422 connection diagram 1)



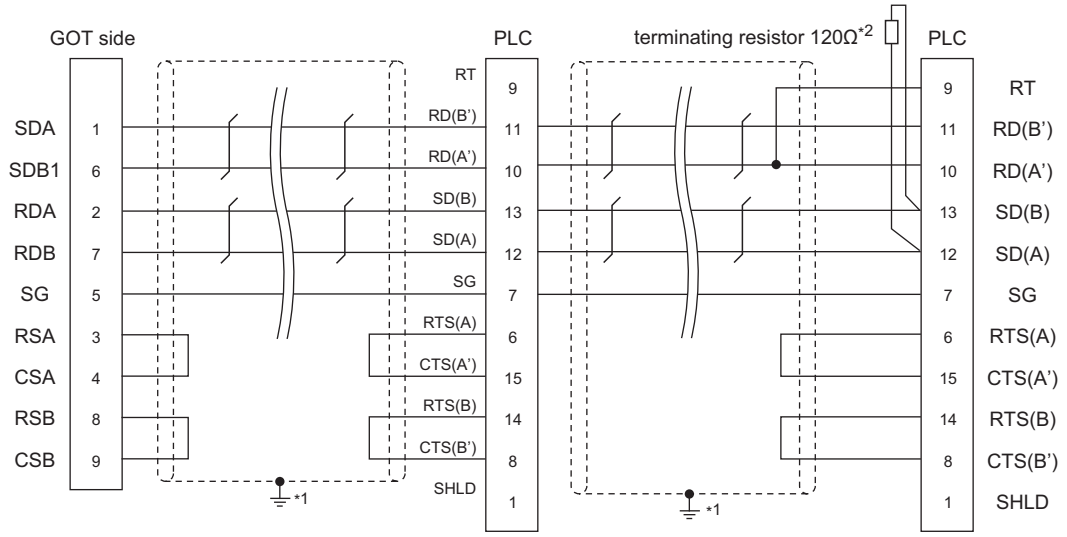

*1 Connect FG grounding to the appropriate part of a cable shield line.
*2 A terminating resistor should be connected to communication module at a terminal station.

(2) RS-422 connection diagram 2)




*1 Connect FG grounding to the appropriate part of a cable shield line.
*2 Terminating resistor should be provided for a PLC which will be a terminal.

(3) RS-422 connection diagram 3)




*1 Connect FG grounding to the appropriate part of a cable shield line.
*2 Terminating resistor should be provided for a PLC which will be a terminal.

## ■ Precautions when preparing a cable

(1) Cable length
The length of the RS-422 cable must be 1200m or less.

(2) GOT side connector
For the GOT side connector, refer to the following.

☞ 1.4.1 GOT connector specifications

(3) GE PLC side connector
Use the connector compatible with the GE PLC side module.
For details, refer to the GE PLC user's manual.

## ■ Connecting terminating resistors

(1) GOT side
Set the terminating resistor setting switch of the GOT main unit to "Disable".
For the procedure to set the terminating resistor, refer to the following.

☞ 1.4.3 Terminating resistors of GOT

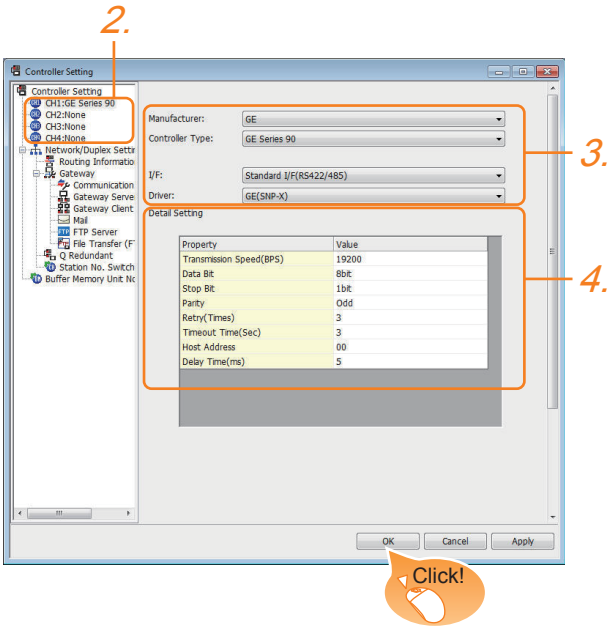
(2) GE PLC side
When connecting a GE PLC to the GOT, a terminating resistor must be connected.

☞ GE PLC user's Manual

# 11.4 GOT Side Settings

## 11.4.1 Setting communication interface (Communication settings)

Set the channel of the connected equipment.




1. Select [Common] → [Controller Setting] from the menu.
2. The Controller Setting window is displayed. Select the channel to be used from the list menu.
3. Set the following items.
   - Manufacturer: GE
   - Controller Type: GE Series 90
   - I/F: Interface to be used
   - Driver: GE (SNP-X)
4. The detailed setting is displayed after Manufacturer, Controller Type, I/F, and Driver are set.
   Make the settings according to the usage environment.
   11.4.2 Communication detail settings

Click the [OK] button when settings are completed.

**POINT**

The settings of connecting equipment can be confirmed in [I/F Communication Setting].
For details, refer to the following.
1.1.2 I/F communication setting

## 11.4.2 Communication detail settings

Make the settings according to the usage environment.

(1) GE (SNP-X)

| Property | Value |
|---|---|
| Transmission Speed(BPS) | 19200 |
| Data Bit | 8 bit |
| Stop Bit | 1 bit |
| Parity | Odd |
| Retry(Times) | 3 |
| Timeout Time(Sec) | 3 |
| Host Address | 00 |
| Delay Time(ms) | 5 |

| Item | Description | Range |
|---|---|---|
| Transmission Speed | Set this item when change the transmission speed used for communication with the connected equipment. (Default: 19200bps) | 9600bps, 19200bps, 38400bps, 57600bps, 115200bps |
| Data Bit*1 | Set this item when change the data length used for communication with the connected equipment. (Default: 8bits) | 7bits/8bits |
| Stop Bit | Specify the stop bit length for communications. (Default: 1bit) | 1bit/2bits |
| Parity | Specify whether or not to perform a parity check, and how it is performed during communication. (Default: Odd) | None<br>Even<br>Odd |
| Retry | Set the number of retries to be performed when a communication error occurs. (Default: 3times) | 0 to 5times |
| Timeout Time | Set the time period for a communication to time out. (Default: 3sec) | 1 to 30sec |
| Host Address | Specify the host address (station No. of the GOT to which the PLC is connected) in the connected network. (Default: 00) | 00 to 31 |
| Delay Time | Set this item to adjust the transmission timing of the communication request from the GOT. (Default: 5ms) | 0 to 300ms |

*1 If no setting is provided for the data length for the controller, set "8 bits".
If the setting is provided for the data length for the controller, set the same set value for the data length for the GOT as that for the PLC.

**POINT**

(1) Communication interface setting by the Utility
The communication interface setting can be changed on the Utility's [Communication setting] after writing [Communication Settings] of project data.
For details on the Utility, refer to the following manual.
GOT2000 Series User's Manual (Utility)

(2) Precedence in communication settings
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

# 11.5 PLC Side Setting

POINT

GE PLC

For details of GE PLCs, refer to the following manuals.

☞ GE PLC user's Manual

| Model name | | Refer to |
|---|---|---|
| PLC CPU | Series 90-30 | 11.5.1 |
| | VersaMaxMicro | 11.5.2 |
| Communication Modules | IC693CMM311 | 11.5.3 |
| | IC697CMM711 | 11.5.4 |

## 11.5.1 Connecting to Series 90-30

### ■ Communication settings

Make the communication settings using the engineering tool.

When making the settings, set [Configuration Mode] on the [Setting] tab of the engineering tool to "SNP only".

| Setting item | PLC side setting |
|---|---|
| Port Mode*1 | SNP |
| Port Type*2 | Slave |
| Data Rate | 9600bps, 19200bps |
| Flow Control | NONE |
| Parity | EVEN, ODD, NONE |
| Stop Bits | 1bit, 2bits |
| Timeout*3 | Long |
| Turn Around Delay*4 | 0 |
| SNP ID*5 | 00 to 31 |
| Converter Power Consumption*6 | 0 |

*1 Set to SNP.
*2 Set to Slave.
*3 Set to Long.
*4 Set to 0.
*5 Set within the range of 00 to 31.
When specifying the station No. from 0 to 9, add "0" before the number and set it as 00 to 09.
*6 Set to 0.(only when connecting to Port2)

## 11.5.2 Connecting to VersaMaxMicro

### ■ Communication settings

Make the communication settings using the engineering tool.

| Setting item | PLC side setting |
|---|---|
| Data Rate | 9600bps, 19200bps, 38400bps |
| Bits / Character*6 | 7bits, 8bits |
| Parity | EVEN, ODD, NONE |
| Stop Bits | 1bit, 2bits |
| Port Mode*1 | SNP |
| Port Type*2 | Slave |
| Flow Control | NONE |
| Timeout*3 | Long |
| Turn Around Delay*4 | 0 |
| SNP ID*5 | 00 to 31 |

*1 Set to the SNP protocol.
*2 Set to Slave.
*3 Set to Long.
*4 Set to 0.
*5 Set within the range of 00 to 31.
When specifying the station No. from 0 to 9, add "0" before the number and set it as 00 to 09.
*6 Set the same set value for the data length for the GOT and PLC.

## 11.5.3 Connecting to IC693CMM311

### ■ Communication settings

Make the communication settings using the engineering tool.

When making the settings, set [Configuration Mode] on the [Setting] tab of the engineering tool to "SNP only".

| Setting item | PLC side setting |
|---|---|
| SNP Enable*1 | YES |
| SNP Mode*2 | Slave |
| Interface*3 | RS232, RS485 |
| Data Rate | 9600bps, 19200bps |
| Parity | ODD, NONE, EVEN |
| Stop Bits | 1bit, 2bits |
| Flow Control*4 | NONE |
| Turn Around Delay*5 | NONE |
| Timeout*6 | Long |

*1 Set to YES.
*2 Set to SLAVE.
*3 Set the communication format to be used.
(only when connecting to Port2)
*4 Set to NONE.
*5 Set to NONE.
*6 Set to LONG.

## 11.5.4 Connecting to IC697CMM711

### ■ Communication settings

Make the communication settings using the engineering tool.

When making the settings, set [Configuration Mode] on the [Setting] tab of the engineering tool to "SNP only".

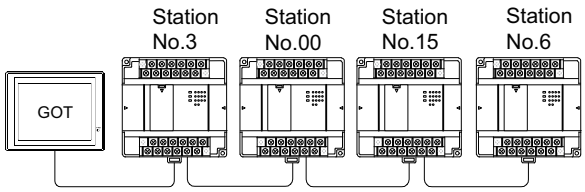
| Setting item | PLC side setting |
|---|---|
| SNP Enable*1 | YES |
| SNP Mode*2 | Slave |
| Interface*3 | RS232, RS485 |
| Data Rate | 9600bps, 19200bps |
| Parity | ODD, NONE, EVEN |
| Stop Bits | 1bit, 2bits |
| Flow Control*4 | NONE |
| Turn Around Delay*5 | NONE |
| Timeout*6 | Long |

*1 Set to YES.
*2 Set to SLAVE.
*3 Set the communication format to be used.
(only when connecting to Port2)
*4 Set to NONE.
*5 Set to NONE.
*6 Set to LONG.

## 11.5.5 Station number setting

Set each station number so that no station number overlaps.

The station number can be set without regard to the cable connection order. There is no problem even if station numbers are not consecutive.




Examples of station number setting

(1) Direct specification

Specify the station No. of the PLC to be changed when setting device.

| Specification range |
|---|
| 00 to 31 |

**POINT**

PLC Station No. settings

Make sure to set a 2-digit number for the station No. of the PLC to be monitored by the GOT.

# 11.6 Device Range that Can Be Set

The device ranges of controller that can be used for GOT are as follows.

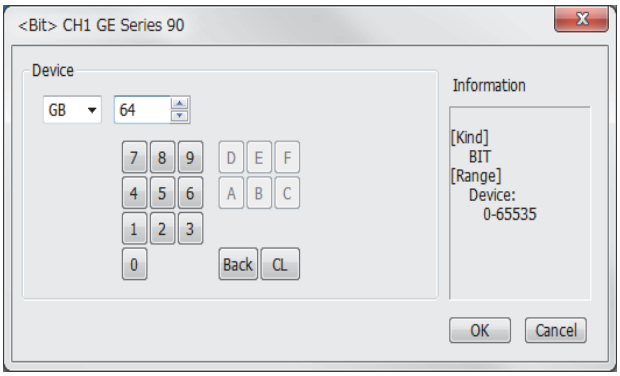
Note that the device ranges in the following tables are the maximum values that can be set in GT Designer3.

The device specifications of controllers may differ depending on the models, even though belonging to the same series.

Please make the setting according to the specifications of the controller actually used.

When a non-existent device or a device number outside the range is set, other objects with correct device settings may not be monitored.

## ■ Setting item




| Item | | Description |
|---|---|---|
| Device | | Set the device name, device number, and bit number.<br>The bit number can be set only when specifying the bit of word device. |
| Information | | Displays the device type and setting range which are selected in [Device]. |
| Network | | Set the monitor target of the set device. |
| | Station No. | Select this item when monitoring the PLC of the specified station No. |

## 11.6.1 GE Series 90

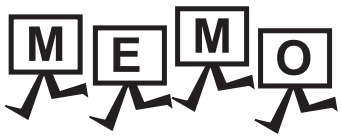
| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | input (I) | I00001 to I12288 | Decimal |
| | output (Q) | Q00001 to Q12288 | |
| | internal (M) | M00001 to M12288 | |
| | temporary (T) | T001 to T256 | |
| | system status (S) | S001 to S128 | |
| | system status (SA) | SA001 to SA128 | |
| | system status (SB) | SB001 to SB128 | |
| | system status (SC) | SC001 to SC128 | |
| | global data (G) | G0001 to G7680 | |
| | The bit specification of the word device | Setting range of each word device | |
| Word device | system register (R) | R00001 to R32640 | Decimal |
| | analog input register (AI) | AI0001 to AI32640 | |
| | analog output register (AQ) | AQ0001 to AQ32640 | |

# 11.7 Precautions

## ■ GOT clock control

The PLC clock data cannot be written to or read from the GOT.

The settings of "time adjusting" or "time broadcast" made on the GOT will be disabled on the PLC.


MEMO

# 12

# CONNECTION TO LS INDUSTRIAL SYSTEMS PLC


12.1 Connectable Model List . . . . . 12 - 2
12.2 System Configuration . . . . . 12 - 3
12.3 Connection Diagram . . . . . 12 - 9
12.4 GOT Side Settings . . . . . 12 - 11
12.5 PLC Side Setting . . . . . 12 - 12
12.6 Device Range that Can Be Set . . . . . 12 - 13

# 12. CONNECTION TO LS INDUSTRIAL SYSTEMS PLC

## 12.1 Connectable Model List

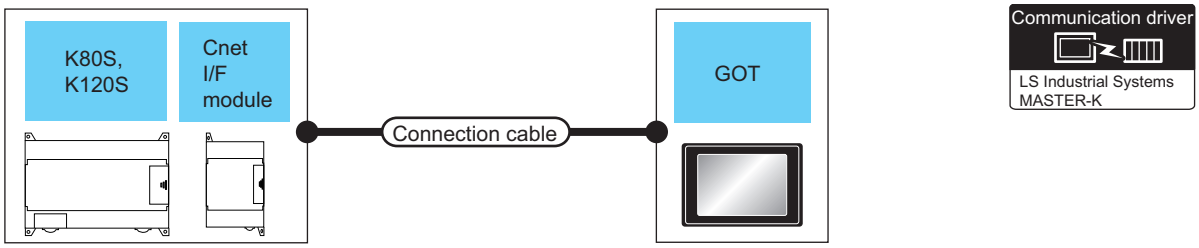
The following table shows the connectable models.

| Series | Model name | Clock | Communication Type | Connectable model | Refer to |
|---|---|---|---|---|---|
| K80S | K7M-D□□□S(/DC) | ○ | RS-232<br>RS-422 | GT27 GT25 GT23 GT21 | 12.2.1 |
| K120S | K7M-D□□□U | | | | |
| K200S | K3P-07□S | ○ | RS-232<br>RS-422 | GT27 GT25 GT23 GT21 | 12.2.2 |
| K300S | K4P-15AS | ○ | RS-232<br>RS-422 | GT27 GT25 GT23 GT21 | 12.2.3 |

# 12.2 System Configuration

## 12.2.1 Connecting to K80S or K120S

■ When connecting to one PLC

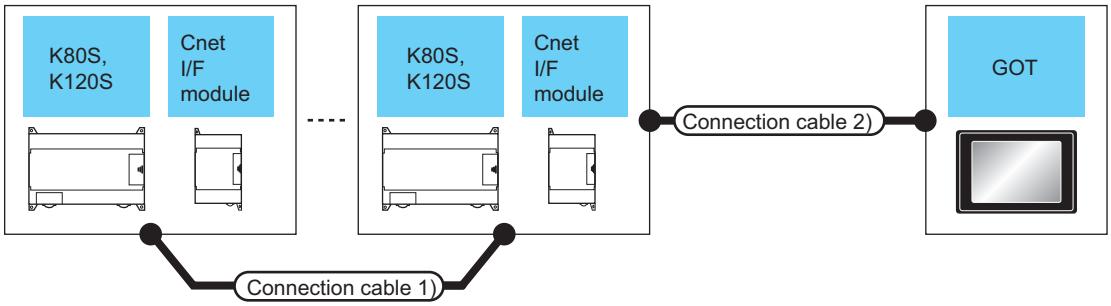



| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Series | Cnet I/F module*1 | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| K80S K120S | - | RS-232 | User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 PLC for 1 GOT |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | | | | | GT10-C02H-6PT9P*2 | GT21 03P R4 GT21 03P R2 | |
| | | | User preparing RS-232 connection diagram 3) | same as above | - (Built into GOT) | GT21 04R GT21 03P R2 | |
| | G7L-CUEB | RS-232 | User preparing RS-232 connection diagram 2) | 15m | - (Built into GOT) | GT27 GT25 GT23 | |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | | | | | GT10-C02H-6PT9P*2 | GT21 03P R4 GT21 03P R2 | |
| | | | User preparing RS-232 connection diagram 4) | same as above | - (Built into GOT) | GT21 04R GT21 03P R2 | |

*1 Product manufactured by LS Industrial Systems Co., Ltd. For details of the product, contact LS Industrial Systems Co.,Ltd.

*2 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.

■ When connecting to multiple PLCs



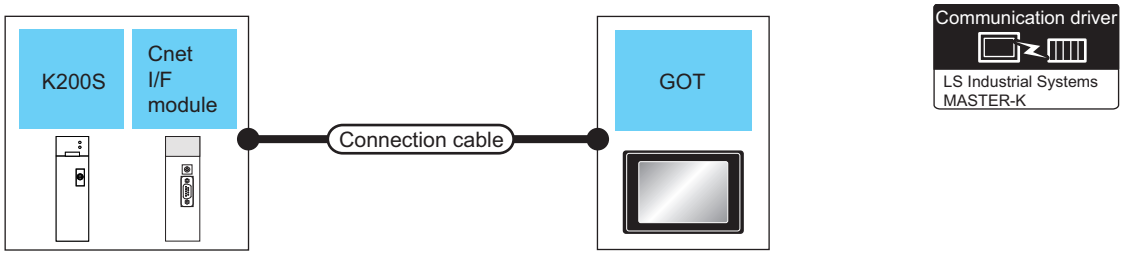

| PLC | Connection cable 1) | Cnet I/F module*1 | | Connection cable 2) | Max. distance | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|
| Series | Cable model Connection diagram number | Model name | Communication Type | Cable model Connection diagram number | | Option device | Model | |
| K80S K120S | User preparing RS-422 connection diagram 2) | G7L-CUEC | RS-422 | User preparing RS-422 connection diagram 1) | 500m*3 | - (Built into GOT) | GT27 GT25 GT23 | 31 PLCs for 1 GOT |
| | | | | | | GT15-RS4-9S | GT27 GT25 | |
| | | | | | | GT10-C02H-9SC | GT21 GT21 | |
| | | | | User preparing RS-422 connection diagram 3) | 500m*2 | - (Built into GOT) | GT21 GT21 GT21 | |

*1 Product manufactured by LS Industrial Systems Co., Ltd.For details of the product, contact LS Industrial Systems Co.,Ltd.

*2 The total length of the connection cable 1) + connection cable 2)

## 12.2.2 Connecting to K200S

■ When connecting to one PLC

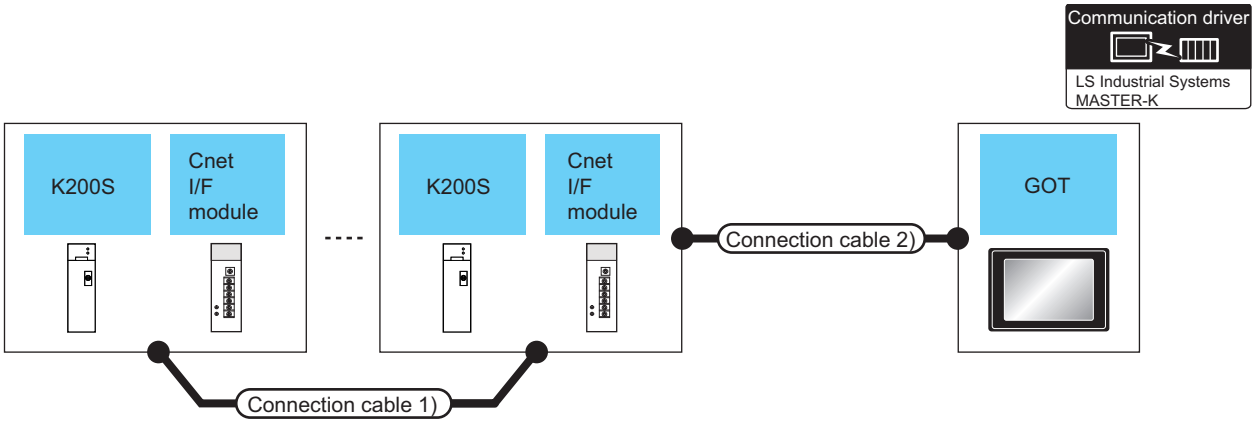



| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Series | Cnet I/F module*1 | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| K200S | G6L-CUEB | RS-232 | User preparing RS-232 connection diagram 2) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 PLC for 1 GOT |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | | | | | GT10-C02H-6PT9P*2 | GT21 R4 GT21 R2 | |
| | | | User preparing RS-232 connection diagram 4) | 15m | - (Built into GOT) | GT21 R4 GT21 R2 | |

*1 Product manufactured by LS Industrial Systems Co., Ltd.For details of the product, contact LS Industrial Systems Co.,Ltd.

*2 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.

■ When connecting to multiple PLCs




| PLC | Connection cable 1) | Cnet I/F module*1 | | Connection cable 2) | Max. distance | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|
| Series | Cable model Connection diagram number | Model name | Communication Type | Cable model Connection diagram number | | Option device | Model | |
| K200S | User preparing RS-422 connection diagram 2) | G6L-CUEC | RS-422 | User preparing RS-422 connection diagram 1) | 500m*3 | - (Built into GOT) | GT27 GT25 GT23 | 31 PLCs for 1 GOT |
| | | | | | | GT15-RS4-9S | GT27 GT25 | |
| | | | | | | GT10-C02H-9SC | GT2104R GT2103P-R4 | |
| | | | | User preparing RS-422 connection diagram 3) | 500m*2 | - (Built into GOT) | GT2104R GT2103P-ETR4 GT2103P-R4 | |

*1 Product manufactured by LS Industrial Systems Co., Ltd. For details of the product, contact LS Industrial Systems Co.,Ltd.

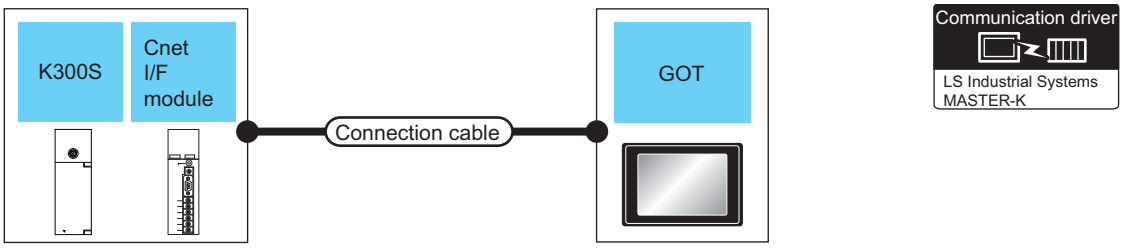
*2 The total length of the connection cable 1) + connection cable 2)

*3 The total length of the connection cable 1) + connection cable 2) + option device cable

*4 Connect it to the RS-232 interface (built into GOT). It cannot be mounted on GT1655 and GT155□.

## 12.2.3 Connecting to K300S

■ When connecting to one PLC

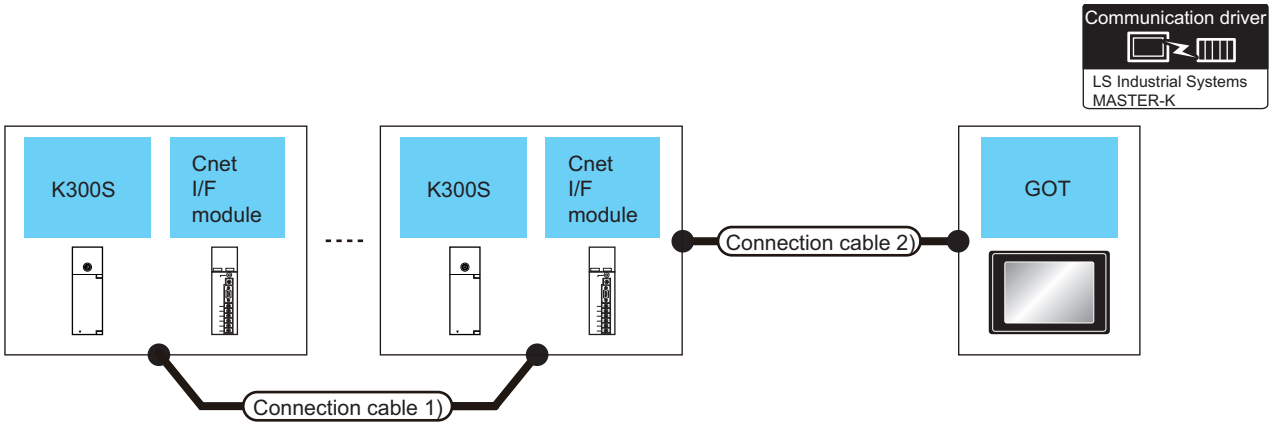



| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Series | Cnet I/F module*1 | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| K300S | G4L-CUEA | RS-232 | User preparing RS-232 connection diagram 2) | 15m | - (Built into GOT) | GT27 GT25 GT23 | 1 PLC for 1 GOT |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | | | | | GT10-C02H-6PT9P*2 | GT21 R4 GT21 R2 | |
| | | | User preparing RS-232 connection diagram 4) | 15m | - (Built into GOT) | GT21 R4 GT21 R2 | |

*1 Product manufactured by LS Industrial Systems Co., Ltd. For details of the product, contact LS Industrial Systems Co.,Ltd.

*2 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.

■ When connecting to multiple PLCs




| PLC | Connection cable 1) | Cnet I/F module*1 | | Connection cable 2) | Max. distance | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|---|
| Series | Cable model Connection diagram number | Cnet I/F module*1 | Communication Type | Cable model Connection diagram number | | Option device | Model | |
| K300S | User preparing RS-422 connection diagram 2) | G4L-CUEA | RS-422 | User preparing RS-422 connection diagram 1) | 500m*3 | - (Built into GOT) | GT27 GT25 GT23 | 31 PLCs for 1 GOT |
| | | | | | | GT15-RS4-9S | GT27 GT25 | |
| | | | | | | GT10-C02H-9SC | GT21 GT21 | |
| | | | | User preparing RS-422 connection diagram 3) | 500m*2 | - (Built into GOT) | GT21 GT21 GT21 | |

*1 Product manufactured by LS Industrial Systems Co., Ltd. For details of the product, contact LS Industrial Systems Co.,Ltd.

*2 The total length of the connection cable 1) + connection cable 2)

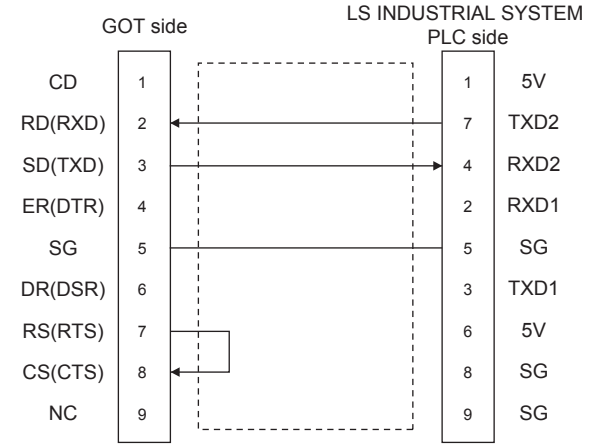
# 12.3 Connection Diagram

The following diagram shows the connection between the GOT and the PLC.

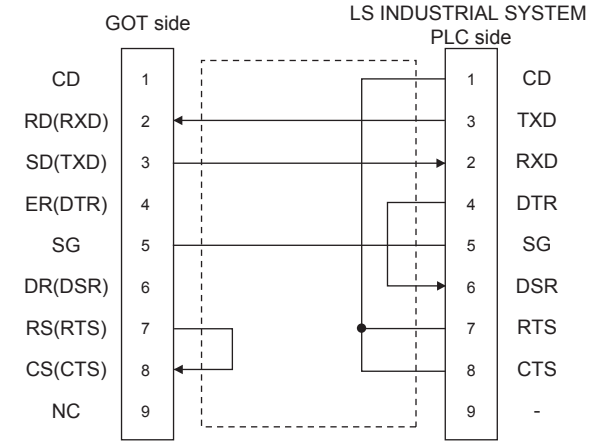
## 12.3.1 RS-232 cable

### ■ Connection diagram

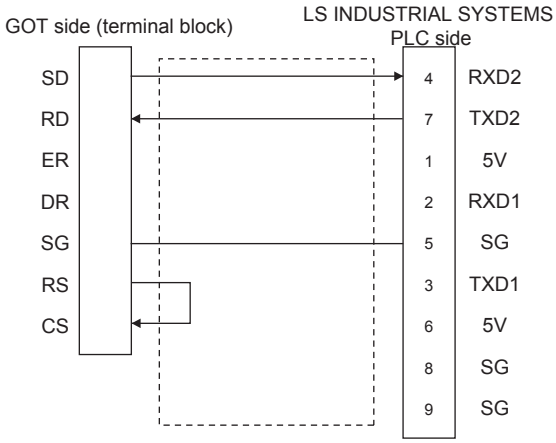
(1) RS-232 connection diagram 1)



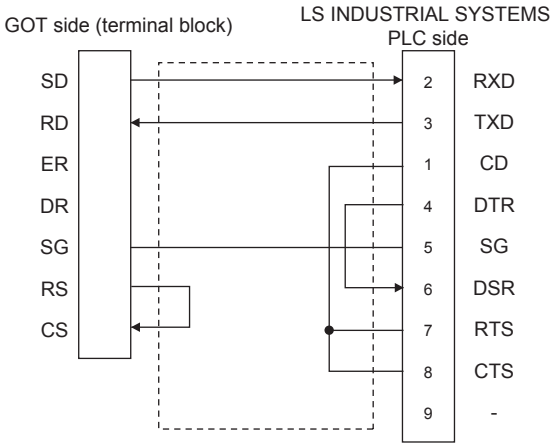

(2) RS-232 connection diagram 2)




(3) RS-232 connection diagram 3)




(4) RS-232 connection diagram 4)




### ■ Precautions when preparing a cable

(1) Cable length
The length of the RS-232 cable must be 15m or less.

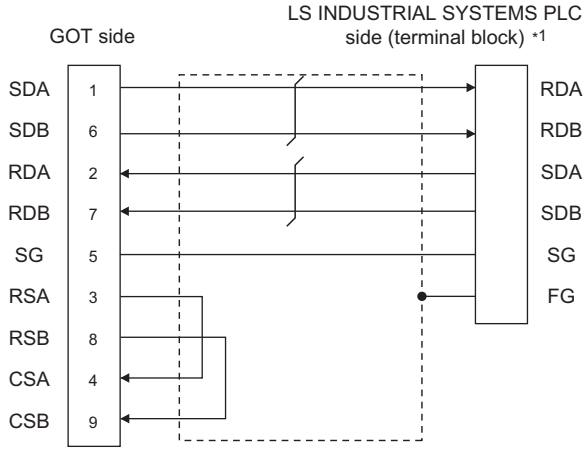
(2) GOT side connector
For the GOT side connector, refer to the following.
1.4.1 GOT connector specifications

(3) LS INDUSTRIAL SYSTEMS PLC side connector
Use the connector compatible with the LS INDUSTRIAL SYSTEMS PLC side module.
For details, refer to the user's manual of the LS INDUSTRIAL SYSTEMS PLC.

## 12.3.2 RS-422 cable

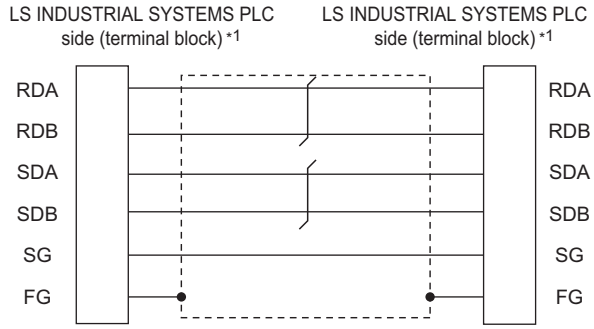
### ■ Connection diagram

(1) RS-422 connection diagram 1)



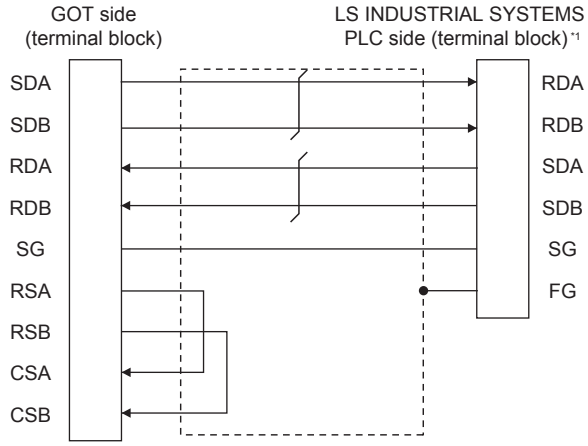

*1 For the system terminal, connect a 120Ω (1/2W) terminating resistor across RDA and RDB, and across SDA and SDB respectively.

(2) RS-422 connection diagram 2)




*1 For the system terminal, connect a 120Ω (1/2W) terminating resistor across RDA and RDB, and across SDA and SDB respectively.

(3) RS-422 connection diagram 3)




*1 For the system terminal, connect a 120Ω (1/2W) terminating resistor across RDA and RDB, and across SDA and SDB respectively.

### ■ Precautions when preparing a cable

(1) Cable length
The length of the RS-422 cable must be 500m or less.

(2) GOT side connector
For the GOT side connector, refer to the following.
☞ 1.4.1 GOT connector specifications

(3) LS INDUSTRIAL SYSTEMS PLC side connector
Use the connector compatible with the LS INDUSTRIAL SYSTEMS PLC side module.
For details, refer to the user's manual of the LS INDUSTRIAL SYSTEMS PLC.

### ■ Connecting terminating resistors

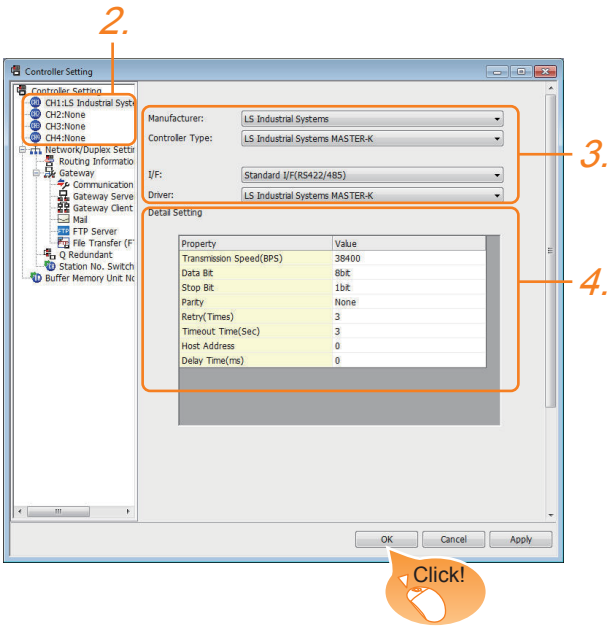
(1) GOT side
Set the terminating resistor setting switch of the GOT main unit to "Disable".
For the procedure to set the terminating resistor, refer to the following.
☞ 1.4.3 Terminating resistors of GOT

(2) LS INDUSTRIAL SYSTEMS PLC side
When connecting an LS INDUSTRIAL SYSTEMS PLC to the GOT, a terminating resistor must be connected.
☞ 12.3.2 RS-422 cable ■ Connection diagram

# 12.4 GOT Side Settings

## 12.4.1 Setting communication interface (Communication settings)

Set the channel of the connected equipment.




1. Select [Common] → [Controller Setting] from the menu.
2. The Controller Setting window is displayed. Select the channel to be used from the list menu.
3. Set the following items.
   - Manufacturer: LS Industrial Systems
   - Controller Type: LS Industrial Systems MASTER-K
   - I/F: Interface to be used
   - Driver: LS Industrial Systems MASTER-K
4. The detailed setting is displayed after Manufacturer, Controller Type, I/F, and Driver are set.
   Make the settings according to the usage environment.
   12.4.2 Communication detail settings

Click the [OK] button when settings are completed.

**POINT**

The settings of connecting equipment can be confirmed in [I/F Communication Setting].
For details, refer to the following.
1.1.2 I/F communication setting

## 12.4.2 Communication detail settings

Make the settings according to the usage environment.

| Property | Value |
|---|---|
| Transmission Speed(BPS) | 38400 |
| Data Bit | 8 bit |
| Stop Bit | 1 bit |
| Parity | None |
| Retry(Times) | 3 |
| Timeout Time(Sec) | 3 |
| Host Address | 0 |
| Delay Time(ms) | 0 |

| Item | Description | Range |
|---|---|---|
| Transmission Speed | Set this item when change the transmission speed used for communication with the connected equipment.<br>(Default: 38400bps) | 9600bps,<br>19200bps,<br>38400bps,<br>57600bps,<br>115200bps |
| Data Bit | Set this item when change the data length used for communication with the connected equipment.<br>(Default: 8bits) | 7bits/8bits |
| Stop Bit | Specify the stop bit length for communications.<br>(Default: 1bit) | 1bit/2bits |
| Parity | Specify whether or not to perform a parity check, and how it is performed during communication.<br>(Default: None) | None<br>Even<br>Odd |
| Retry | Set the number of retries to be performed when a communication error occurs.<br>(Default: 3times) | 0 to 5times |
| Timeout Time | Set the time period for a communication to time out.<br>(Default: 3sec) | 3 to 30sec |
| Host Address | Specify the host address (station No. of the PLC to which the GOT is connected) in the network of the GOT.<br>(Default: 0) | 0 to 31 |
| Delay Time | Set this item to adjust the transmission timing of the communication request from the GOT.<br>(Default: 0ms) | 0 to 300 (ms) |

**POINT**

(1) Communication interface setting by the Utility
The communication interface setting can be changed on the Utility's [Communication setting] after writing [Communication Settings] of project data.
For details on the Utility, refer to the following manual.
GOT2000 Series User's Manual (Utility)

(2) Precedence in communication settings
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

# 12.5 PLC Side Setting

**POINT**

LS INDUSTRIAL SYSTEMS PLC

For details of LS INDUSTRIAL SYSTEMS PLCs, refer to the following manual.

☞ User's Manual of the LS INDUSTRIAL SYSTEMS PLC

| Model name | | Refer to |
|---|---|---|
| PLC CPU | K80S<br>K120S | 12.5.1 |
| | K200S | |
| | K300S | |
| Cnet I/F module | G7L-CUEB | 12.5.2 |
| | G7L-CUEC | |
| | G6L-CUEB | |
| | G6L-CUEC | |
| | G4L-CUEA | |

## 12.5.1 Connecting to PLC CPU

### ■ Settings of the communication specifications

There is no item to be set using the hardware.
Set the items using the engineering software for MASTER-K.

| Item | Setting details |
|---|---|
| Station No. | 0 to 31 |
| Communication speed | 1200, 2400, 4800, 9600, 19200, 38400, 57600bps |
| Data bit | 7 or 8 |
| Parity bit | None, Even, Odd |
| Stop bit | 1 or 2 |

*1 For the setting method of the engineering software, refer to the following.

☞ User's Manual of the LS INDUSTRIAL SYSTEMS PLC

## 12.5.2 Connecting to Cnet I/F module

### ■ Settings of the communication specifications

There is no item to be set using the hardware.
Set the items using the engineering software for MASTER-K.

| Item | | Setting details |
|---|---|---|
| Communication protocol | | Dedicated protocol |
| Communication format | Data bit | 7 or 8 |
| | Stop bit | 1 or 2 |
| | Start bit | 1 |
| | Parity bit | Even/Odd/None |
| Channel selection | | Stand-alone mode/Interlocking mode |
| Synchronization | | Asynchronous |
| Transmission speed (bps) | RS-232C | 300/600/1200/2400/4800/9600/19200/38400 |
| | RS-422/485 | 300/600/1200/2400/4800/9600/19200/38400/76800 |

*1 For the setting method of the engineering software, refer to the following.

☞ User's Manual of the LS INDUSTRIAL SYSTEMS PLC

# 12.6 Device Range that Can Be Set

The device ranges of controller that can be used for GOT are as follows.

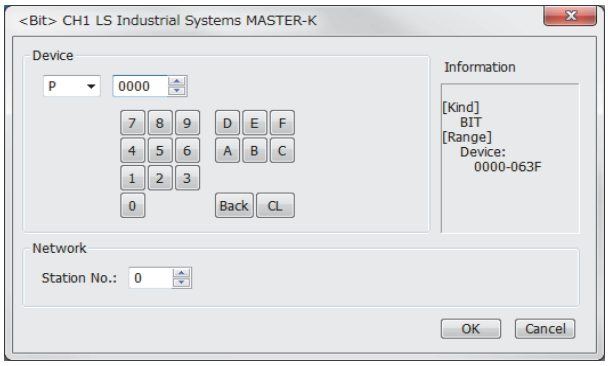
Note that the device ranges in the following tables are the maximum values that can be set in GT Designer3.

The device specifications of controllers may differ depending on the models, even though belonging to the same series.

Please make the setting according to the specifications of the controller actually used.

When a non-existent device or a device number outside the range is set, other objects with correct device settings may not be monitored.

## ■ Setting item




| Item | Description | |
|---|---|---|
| Device | Set the device name, device number, and bit number.<br>The bit number can be set only when specifying the bit of word device. | |
| Information | Displays the device type and setting range which are selected in [Device]. | |
| Network | Set the monitor target of the set device. | |
| | Station No. | Monitors the PLC of the specified station No.<br>0 to 31 : To monitor the PLC of the specified station No.<br>100 to 115 : To specify the station No. of the PLC to be monitored by the value of GOT data register (GD).*1 |

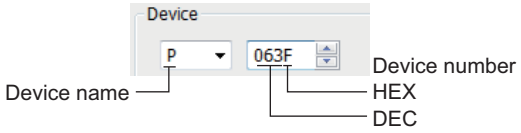
*1 The following shows the relation between station numbers of the PLC and the GOT data register.

| Station No. | GOT data register (GD) | Setting range |
|---|---|---|
| 100 | GD10 | 0 to 31<br>(If setting a value outside the range above, a device range error occurs.) |
| 101 | GD11 | |
| : | : | |
| 114 | GD24 | |
| 115 | GD25 | |

POINT

Device settings of LS IS PLC

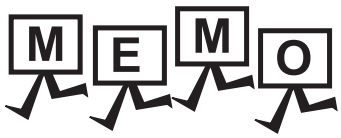
(1) When setting bit device (except timer and counter)
Set the bit device using the decimal number (three digits) and the hexadecimal number.




## 12.6.1 LS Industrial Systems MASTER-K

| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | I/O relay (P) | P0000 to P063F | Decimal + Hexadecimal |
| | Auxiliary relay (M) | M0000 to M191F | |
| | Keep relay (K) | K0000 to K031F | |
| | Link relay (L) | L0000 to L063F | |
| | Special relay (F)*1 | F0000 to F063F | |
| | Timer contact (T) | T0 to T255 | Decimal |
| | Counter contact (C) | C0 to C255 | |
| Word device | I/O relay (P) | P000 to P063 | Decimal |
| | Auxiliary relay (M) | M000 to M191 | |
| | Keep relay (K) | K000 to K031 | |
| | Link relay (L) | L000 to L063 | |
| | Special relay (F)*1 | F000 to F063 | |
| | Timer current value (T) | T0 to T255 | |
| | Counter current value (C) | C0 to C255 | |
| | Step controller (S) | S0 to S99 | |
| | Data register (D) | D0 to D9999 | |

*1 Only reading is possible.


MEMO

# 13

# CONNECTION TO MITSUBISHI INDIA PLC


13.1 Connectable Model List . . . . . 13 - 2
13.2 System Configuration . . . . . 13 - 3
13.3 Connection Diagram . . . . . 13 - 5
13.4 GOT Side Settings . . . . . 13 - 11
13.5 PLC Side Settings . . . . . 13 - 12
13.6 DEVICE RANGE THAT CAN BE SET . . . . . 13 - 13

# 13. CONNECTION TO MITSUBISHI INDIA PLC

## 13.1 Connectable Model List

The following table shows the connectable models.

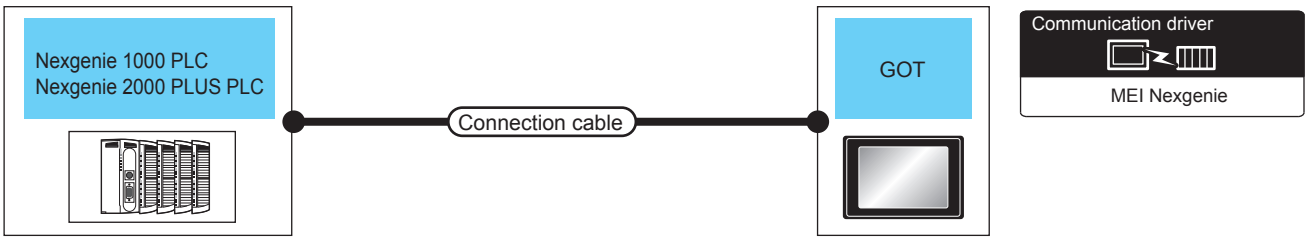
| Series | Model name*1 | Clock | Communication Type | Connectable model | Refer to |
|---|---|---|---|---|---|
| Nexgenie 1000 PLC | NG16DL | ○ | RS-232<br>RS-422<br>RS-485 | GT27 GT25 GT21 GS | 13.2.1 |
| | NG16ADL | | | | |
| | NG14RL | | | | |
| | NG16DN | | | | |
| | NG16ADN | | | | |
| | NG14RN | | | | |
| Nexgenie 2000 PLUS PLC | Nexgenie2210 | ○ | RS-232<br>RS-422<br>RS-485 | GT27 GT25 GT21 GS | 13.2.1 |
| | Nexgenie2211 | | | | |
| | Nexgenie2213A | | | | |
| | Nexgenie2214 | | | | |

*1 Use the PLC versions listed below.

| Model | Applicable Library | | Applicable Target | |
|---|---|---|---|---|
| | Library name | Version | Target name | Version |
| NG16DL | GOT2000_NG_1000.lib | Ver. 1.0 or later | Installable_Target_Nexgenie_T2.7 | Ver. 2.7 or later |
| NG16ADL | | | | |
| NG14RL | | | | |
| NG16DN | | | | |
| NG16ADN | | | | |
| NG14RN | | | | |
| Nexgenie2210 | GOT2000_NG_P2210.lib | Ver. 1.0 or later | Installable_Target_Nexgenie2210_T1.8 | Ver. 1.8 or later |
| Nexgenie2211 | | | | |
| Nexgenie2213A | GOT2000_NG_P2213A.lib | Ver. 1.0 or later | Installable_Target_Nexgenie2213A_T1.5 | Ver. 1.5 or later |
| Nexgenie2214 | GOT2000_NG_P2214.lib | Ver. 1.0 or later | Installable_Target_Nexgenie2214_T1.5 | Ver. 1.5 or later |

# 13.2 System Configuration

## 13.2.1 Connecting to Nexgenie 1000 PLC, Nexgenie 2000 PLUS PLC




| Communication unit | Communication Type | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| | | Cable model Connection diagram number | Max. distance | Option device | Model | |
| Nexgenie 1000 PLC<br>Nexgenie 2000 PLUS PLC | RS-232 | User preparing RS-232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GS | 1 PLC for 1 GOT |
| | | | | GT15-RS2-9P | GT27 GT25 | |
| | | | | GT10-C02H-6PT9P*2 | GT21 03P R4 GT21 03P R2 | |
| | | User preparing RS-232 connection diagram 2) | 15m | - (Built into GOT) | GT21 04R GT21 03P R2 | |
| | RS-422 | User preparing RS-422 connection diagram 1) | 1200m | FA-LTBGT2R4CBL05(0.5m)*1<br>FA-LTBGT2R4CBL10(1m)*1<br>FA-LTBGT2R4CBL20(2m)*1 | GT27 GT25 | Up to 31 PLC for 1 GOT*3 |
| | | User preparing RS-422 connection diagram 2) | 1200m | - (Built into GOT) | GT27 GT25 GS | |
| | | | | GT15-RS4-9S | GT27 GT25 | |
| | | | | GT10-C02H-9SC | GT21 04R GT21 03P R4 | |
| | | User preparing RS-422 connection diagram 3) | 1200m | - (Built into GOT) | GT21 04R GT21 03P ET/R4 GT21 03P R4 | |

| Communication unit | Communication Type | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| | | Cable model Connection diagram number | Max. distance | Option device | Model | |
| Nexgenie 1000 PLC<br>Nexgenie 2000 PLUS PLC | RS-485 | User preparing RS-485 connection diagram 1) | 1200m | FA-LTBGT2R4CBL05(0.5m)*1<br>FA-LTBGT2R4CBL10(1m)*1<br>FA-LTBGT2R4CBL20(2m)*1 | GT27 GT25 | Up to 31 PLC for 1 GOT |
| | | User preparing RS-422 connection diagram 1)RS-485 connection diagram 2) | 1200m | - (Built into GOT) | GT27 GT25 | |
| | | | | GT10-C02H-9SC | GT2104R GT2103PR4 | |
| | | User preparing RS-485 connection diagram 3) | 1200m | GT15-RS4-TE | GT27 GT25 | |
| | | User preparing RS-485 connection diagram 4) | 1200m | - (Built into GOT) | GT2104R GT2103PET/R4 GT2103PR4 | |

*1 Product manufactured by MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED. For details of the product, contact MITSUBISHI ELECTRIC ENGINEERING COMPANY LIMITED.

*2 Do not ground the case of the 9-pin D-Sub connector when using the GT10-C02H-6PT9P (revision A or B).

*3 Only 1 PLC can be connected to the GS.

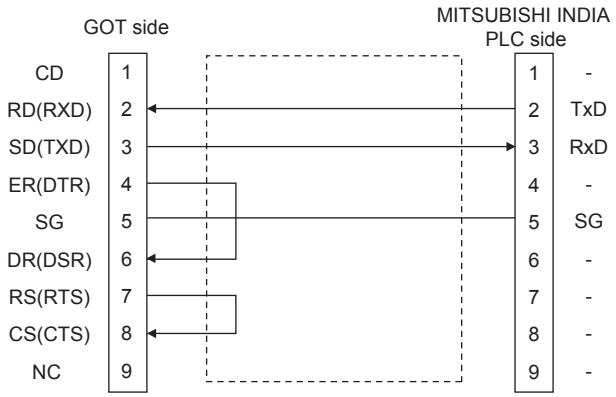
# 13.3 Connection Diagram

The following diagram shows the connection between the GOT and the PLC.

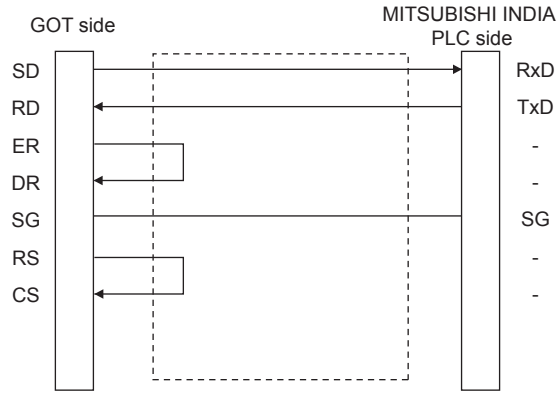
## 13.3.1 RS-232 cable

### ■ Connection diagram

(1) RS-232 connection diagram 1)




(2) RS-232 connection diagram 2)




### ■ Precautions when preparing a cable

(1) Cable length
The length of the RS-232 cable must be 15m or less.

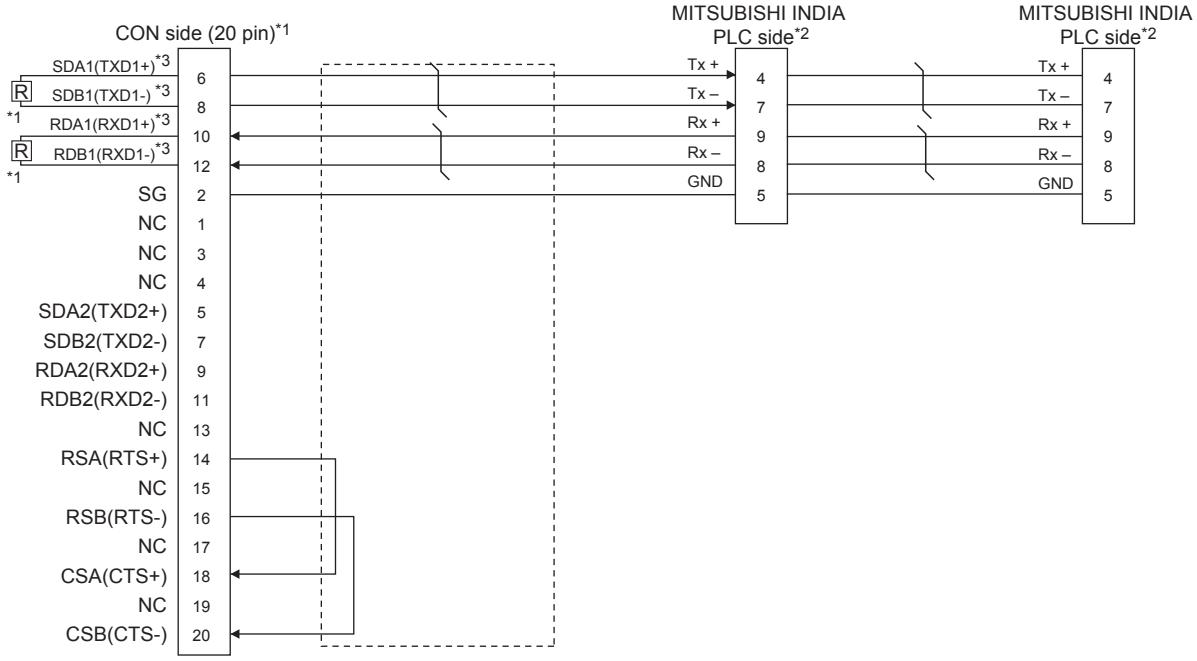
(2) GOT side connector
For the GOT side connector, refer to the following.
☞ 1.4.1GOT connector specifications

(3) MITSUBISHI INDIA PLC side connector
Use the connector compatible with the MITSUBISHI INDIA PLC side module.
For details, refer to the user's manual of the MITSUBISHI INDIA PLC.

## 13.3.2 RS-422 cable

The following diagram shows the connection between the GOT and the PLC.

(1) RS-422 connection diagram 1)



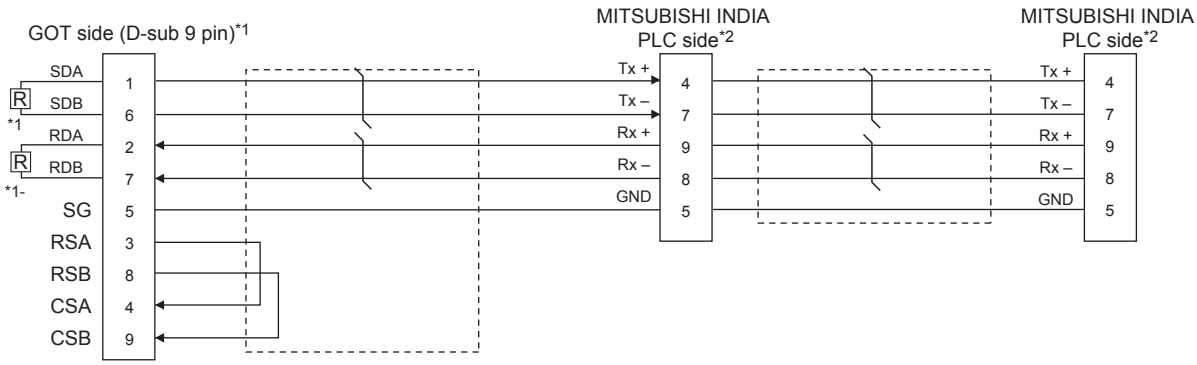

*1 A terminating resistor is required.
Set the terminating resistor selector switch in the main unit to “Disable”, and connect a terminating resistor (110 Ω).

1.4.3 Terminating resistors of GOT

*2 For terminating resistors in PLCs manufactured by MITSUBISHI INDIA, refer to the manual of PLCs manufactured by MITSUBISHI INDIA.

*3 Use a twisted pair cable for the SDA1/SDB1.

(2) RS-422 connection diagram 2)

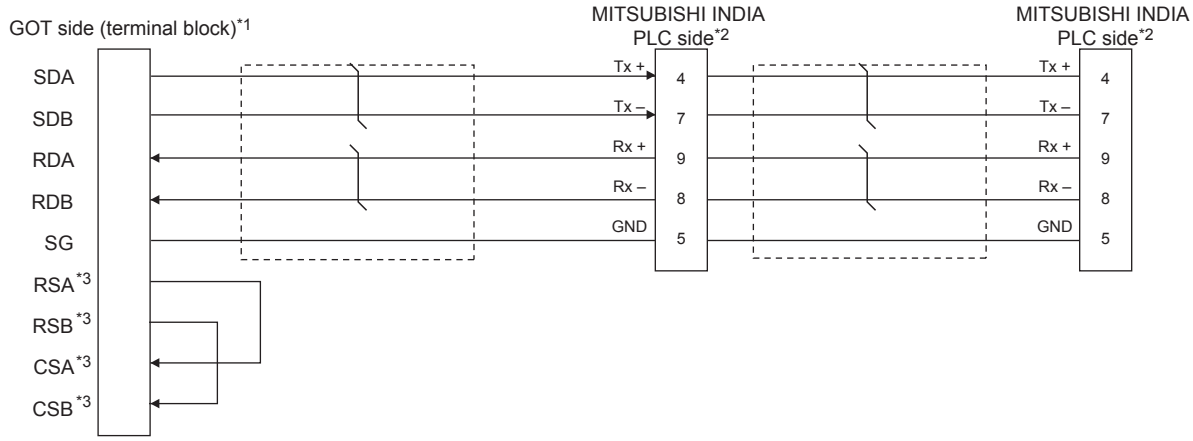



*1 A terminating resistor is required.
In the GT27, set the terminating resistor selector switch in the main unit to “Disable”, and connect a terminating resistor (330 Ω).

1.4.3 Terminating resistors of GOT

*2 For terminating resistors in PLCs manufactured by MITSUBISHI INDIA, refer to the manual of PLCs manufactured by MITSUBISHI INDIA.

(3) RS-422 connection diagram 3)




*1 Set the terminating resistor to “Enable” when arranging the GOT in the end position of the system configuration.
Set the terminating resistor to “Disable” when arranging the GOT in any position other than the end position of the system configuration. 1.4.3 Terminating resistors of GOT

*2 For terminating resistors in PLCs manufactured by MITSUBISHI INDIA, refer to the manual of PLCs manufactured by MITSUBISHI INDIA.

*3 The signals RSA, RSB, CSA, and CSB are not provided for GT21 ET/R4. Return connection is not required.

## ■ Precautions when preparing a cable

(1) Cable length
The length of the RS-422 cable must be 1200m or less.

(2) GOT side connector
For the GOT side connector, refer to the following.
1.4.1 GOT connector specifications

(3) Connectors on the MITSUBISHI INDIA PLC side
Use proper connectors on the MITSUBISHI INDIA PLC side.
For the details, refer to the User’s Manual of the used PLC manufactured by MITSUBISHI INDIA.

## ■ Connecting terminating resistors

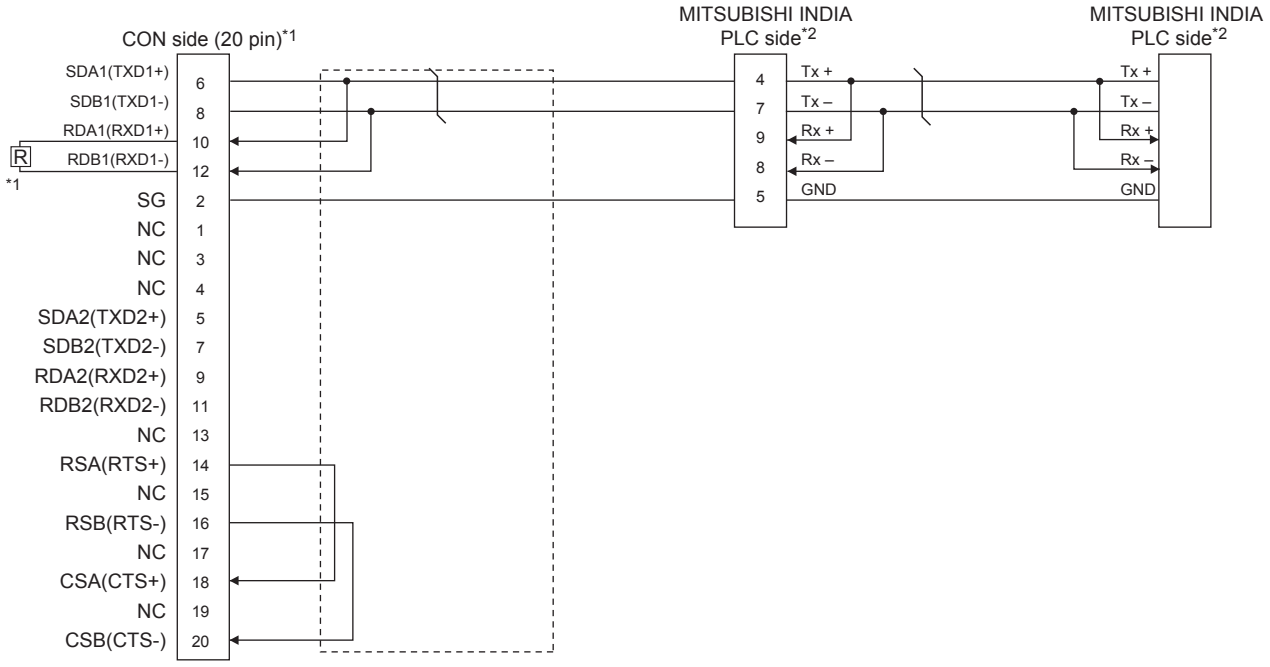
(1) GOT side
Set the terminating resistor using the terminating resistor setting switch.
For the procedure to set the terminating resistor, refer to the following.
1.4.3 Terminating resistors of GOT

(2) MITSUBISHI INDIA PLC side
It is necessary to set terminating resistors in the PLC manufactured by MITSUBISHI INDIA when connecting the GOT to the PLC manufactured by MITSUBISHI INDIA.
For the details, refer to the User’s Manual of the used PLC manufactured by MITSUBISHI INDIA.

## 13.3.3 RS-485 cable

The following diagram shows the connection between the GOT and the PLC.

(1) RS-485 connection diagram 1)

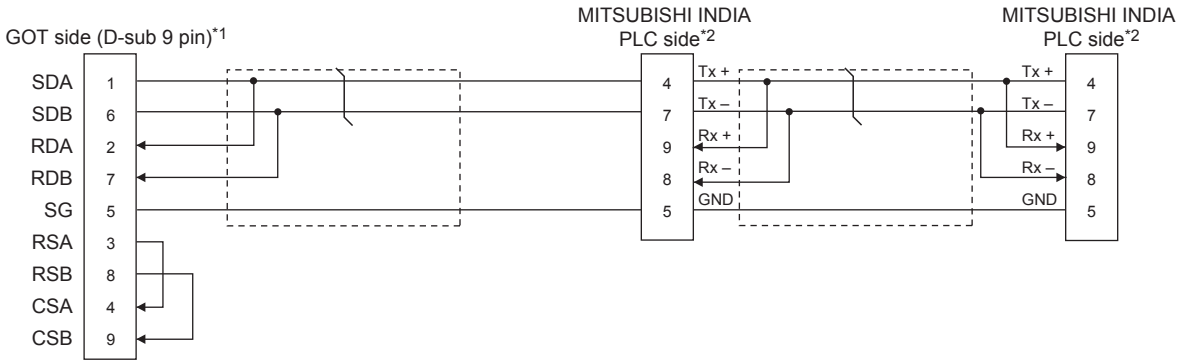



*1 A terminating resistor is required.
Set the terminating resistor selector switch in the main unit to “Disable”, and connect a terminating resistor (110 Ω).

1.4.3 Terminating resistors of GOT

*2 For terminating resistors in PLCs manufactured by MITSUBISHI INDIA, refer to the manual of PLCs manufactured by MITSUBISHI INDIA.

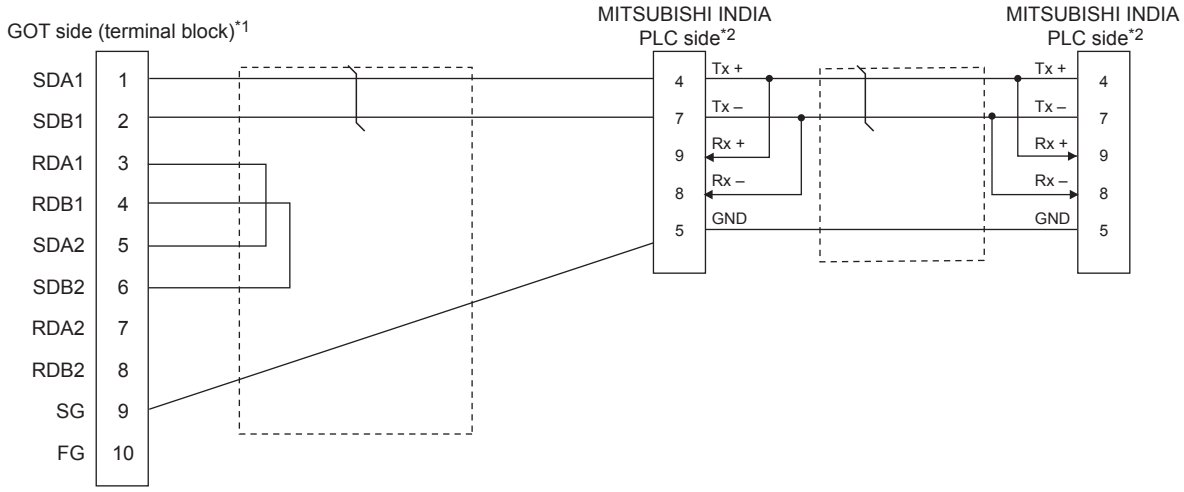
(2) RS-485 connection diagram 2)




*1 Set the terminating resistor to “110 Ω” when arranging the GOT in the end position of the system configuration.
Set the terminating resistor to “OPEN” when arranging the GOT in any position other than the end position of the system configuration. 1.4.3 Terminating resistors of GOT

*2 For terminating resistors in PLCs manufactured by MITSUBISHI INDIA, refer to the manual of PLCs manufactured by MITSUBISHI INDIA.

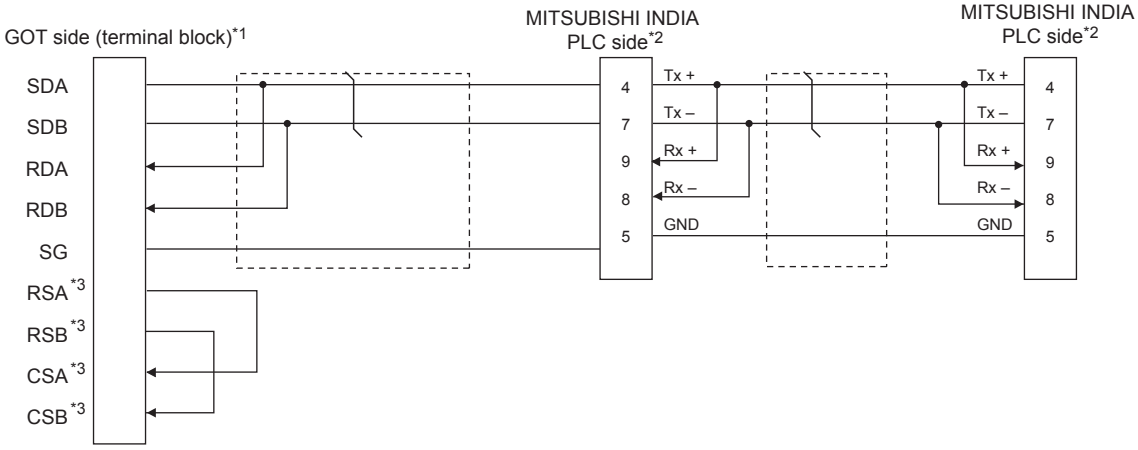
(3) RS-485 connection diagram 3)




*1 Set the terminating resistor to “Enable” when arranging the GOT in the end position of the system configuration.
Set the terminating resistor to “Disable” when arranging the GOT in any position other than the end position of the system configuration. 1.4.3 Terminating resistors of GOT

*2 For terminating resistors in PLCs manufactured by MITSUBISHI INDIA, refer to the manual of PLCs manufactured by MITSUBISHI INDIA.

(4) RS-485 connection diagram 4)




*1 Set the terminating resistor to “Enable” when arranging the GOT in the end position of the system configuration.
Set the terminating resistor to “Disable” when arranging the GOT in any position other than the end position of the system configuration. 1.4.3 Terminating resistors of GOT

*2 For terminating resistors in PLCs manufactured by MITSUBISHI INDIA, refer to the manual of PLCs manufactured by MITSUBISHI INDIA.

*3 The signals RSA, RSB, CSA, and CSB are not provided for GT2103P, GT2104-RTBD, GT2104-RTBDE, GT2104-RTBDW, GT2104-RTBDWE, GT2104-RTBDS, GT2104-RTBDSE, GT2104-RTBDSW, GT2104-RTBDSWE, GT2104-RTBDQ, GT2104-RTBDQE, GT2104-RTBDQW, GT2104-RTBDQWE, GT2104-RTBDQS, GT2104-RTBDQSE, GT2104-RTBDQSW, GT2104-RTBDQSWE, GT2104-RTBDR, GT2104-RTBDRE, GT2104-RTBDRW, GT2104-RTBDRWE, GT2104-RTBDRS, GT2104-RTBDRSE, GT2104-RTBDRSW, GT2104-RTBDRSWE, GT2104-RTBDT, GT2104-RTBDTE, GT2104-RTBDTW, GT2104-RTBDTWE, GT2104-RTBDTS, GT2104-RTBDTSE, GT2104-RTBDTSW, GT2104-RTBDTSWE, GT2104-RTBDU, GT2104-RTBDUE, GT2104-RTBDUW, GT2104-RTBDUWE, GT2104-RTBDUS, GT2104-RTBDUSE, GT2104-RTBDUSW, GT2104-RTBDUSWE, GT2104-RTBDV, GT2104-RTBDVE, GT2104-RTBDVW, GT2104-RTBDVWE, GT2104-RTBDVS, GT2104-RTBDVSE, GT2104-RTBDVSW, GT2104-RTBDVSWE, GT2104-RTBDW, GT2104-RTBDWE, GT2104-RTBDWW, GT2104-RTBDWWE, GT2104-RTBDWS, GT2104-RTBDWSE, GT2104-RTBDWSW, GT2104-RTBDWSWE, GT2104-RTBDX, GT2104-RTBDXE, GT2104-RTBDXW, GT2104-RTBDXWE, GT2104-RTBDXS, GT2104-RTBDXSE, GT2104-RTBDXSW, GT2104-RTBDXSWE, GT2104-RTBDY, GT2104-RTBDYE, GT2104-RTBDYW, GT2104-RTBDYWE, GT2104-RTBDYS, GT2104-RTBDYSE, GT2104-RTBDYSW, GT2104-RTBDYSWE, GT2104-RTBDZ, GT2104-RTBDZE, GT2104-RTBDZW, GT2104-RTBDZWE, GT2104-RTBDZS, GT2104-RTBDZSE, GT2104-RTBDZSW, GT2104-RTBDZSWE, GT2104-RTBDZZ, GT2104-RTBDZZE, GT2104-RTBDZZW, GT2104-RTBDZZWE, GT2104-RTBDZZS, GT2104-RTBDZZSE, GT2104-RTBDZZSW, GT2104-RTBDZZSWE, GT2104-RTBDZZZ, GT2104-RTBDZZZE, GT2104-RTBDZZZW, GT2104-RTBDZZZWE, GT2104-RTBDZZZS, GT2104-RTBDZZZSE, GT2104-RTBDZZZSW, GT2104-RTBDZZZSWE, GT2104-RTBDZZZZ, GT2104-RTBDZZZZE, GT2104-RTBDZZZZW, GT2104-RTBDZZZZWE, GT2104-RTBDZZZZS, GT2104-RTBDZZZZSE, GT2104-RTBDZZZZSW, GT2104-RTBDZZZZSWE, GT2104-RTBDZZZZZ, GT2104-RTBDZZZZZE, GT2104-RTBDZZZZZW, GT2104-RTBDZZZZZWE, GT2104-RTBDZZZZZS, GT2104-RTBDZZZZZSE, GT2104-RTBDZZZZZSW, GT2104-RTBDZZZZZSWE, GT2104-RTBDZZZZZZ, GT2104-RTBDZZZZZZE, GT2104-RTBDZZZZZZW, GT2104-RTBDZZZZZZWE, GT2104-RTBDZZZZZZS, 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GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZW, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZWE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZS, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZSE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZSW, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZSWE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZW, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZWE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZS, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZSE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZSW, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZSWE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZW, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZWE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZS, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZSE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZSW, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZSWE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZW, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZWE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZS, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZSE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZSW, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZSWE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZW, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZWE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZS, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZSE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZSW, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZSWE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZE, 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GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZW, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZWE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZS, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZSE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZSW, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZSWE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZW, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZWE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZS, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZSE, GT2104-RTBDZZZZZZZZZZZZZZZZZZZZZZZZ

## ■ Precautions when preparing a cable

(1) Cable length
The length of the RS-485 cable must be 1200m or less.

(2) GOT side connector
For the GOT side connector, refer to the following.
☞ 1.4.1 GOT connector specifications

(3) Connectors on the MITSUBISHI INDIA PLC side
Use proper connectors on the MITSUBISHI INDIA PLC side.
For the details, refer to the User's Manual of the used MITSUBISHI INDIA PLC.

## ■ Connecting terminating resistors

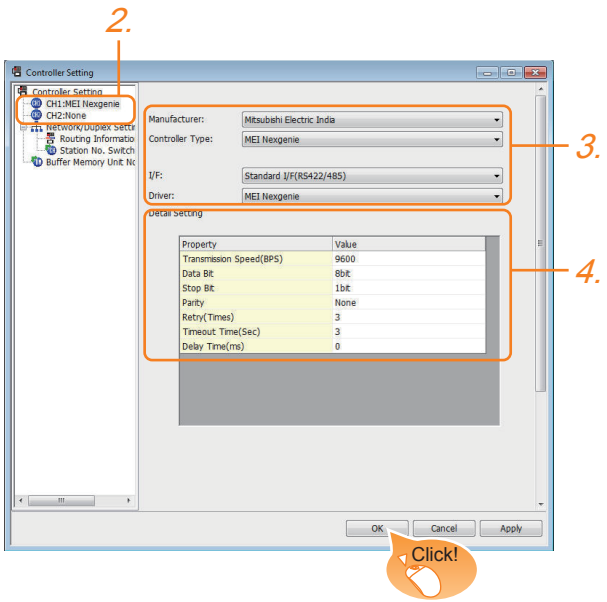
(1) GOT side
Set the terminating resistor using the terminating resistor setting switch.
For the procedure to set the terminating resistor, refer to the following.
☞ 1.4.3 Terminating resistors of GOT

(2) Connectors on the MITSUBISHI INDIA PLC side
Use proper connectors on the MITSUBISHI INDIA PLC side.
For the details, refer to the User's Manual of the used PLC manufactured by MITSUBISHI INDIA.

# 13.4 GOT Side Settings

## 13.4.1 Setting communication interface (Communication settings)

Set the channel of the connected equipment.




1. Select [Common]→[Controller Setting] from the menu.
2. The Controller Setting window is displayed. Select the channel to be used from the list menu.
3. Set the following items.
   - Manufacturer: MITSUBISHI INDIA
   - Controller Type: MEI Nexgenie Series
   - I/F: Interface to be used
   - Driver: MEI Nexgenie
4. The detailed setting is displayed after Manufacturer, Controller Type, I/F, and Driver are set.
   Make the settings according to the usage environment.
   13.4.2 Communication detail settings

Click the [OK] button when settings are completed.

**POINT**

The settings of connecting equipment can be confirmed in [I/F Communication Setting].
For details, refer to the following.
1.1.2I/F communication setting

## 13.4.2 Communication detail settings

Make the settings according to the usage environment.

| Property | Value |
|---|---|
| Transmission Speed(BPS) | 9600 |
| Data Bit | 8bit |
| Stop Bit | 1bit |
| Parity | None |
| Retry(Times) | 3 |
| Timeout Time(Sec) | 3 |
| Delay Time(ms) | 0 |

| Item | Description | Range |
|---|---|---|
| Transmission Speed | Set this item when change the transmission speed used for communication with the connected equipment.<br>(Default: 9600bps) | 9600bps,<br>19200bps,<br>38400bps,<br>57600bps,<br>115200bps |
| Data Bit*1 | Set this item when change the data length used for communication with the connected equipment.<br>(Default: 8bits) | 7bit/8bit |
| Stop Bit | Specify the stop bit length for communications.<br>(Default: 1bit) | 1bit/2bit |
| Parity | Specify whether or not to perform a parity check, and how it is performed during communication.<br>(Default: Odd) | None<br>Even<br>Odd |
| Retry | Set the number of retries to be performed when a communication timeout occurs.<br>(Default: 3times) | 0 to 5times |
| Timeout Time | Set the time period for a communication to time out.<br>(Default: 3sec) | 1 to 30sec |
| Delay Time | Set this item to adjust the transmission timing of the communication request from the GOT.<br>(Default: 0) | 0 to 300ms |

*1 Set "8 bits".

**POINT**

(1) Communication interface setting by the Utility
The communication interface setting can be changed on the Utility's [Communication Settings] after writing [Communication Settings] of project data.
For details on the Utility, refer to the following manuals.
GOT2000 Series User's Manual (Utility)

(2) Precedence in communication settings
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

# 13.5 PLC Side Settings

POINT

PLCs manufactured by MITSUBISHI INDIA

For the details of PLCs manufactured by MITSUBISHI INDIA, refer to the following manual.

☞ PLCs manufactured by MITSUBISHI INDIA

## ■ Communication settings

Make the communication settings using peripheral S/W of MITSUBISHI INDIA PLC.

### (1) Nexgenie 1000 PLC

| Item | Setting details |
|---|---|
| Communication speed*1 | 9600bps, 19200bps, 38400bps, 57600bps, 115200bps |
| Data bit | 8bits |
| Stop bit*1 | 1bit, 2bits |
| Parity bit*1 | None, Even, Odd |
| Full duplex/Half duplex | Half duplex |

*1 Adjust the settings with GOT settings.

### (2) Nexgenie 2000 PLUS PLC

| Item | Setting details |
|---|---|
| Communication speed*1 | 9600bps, 19200bps, 38400bps |
| Data bit | 8bits |
| Stop bit*1 | 1bit, 2bits |
| Parity bit*1 | None, Even, Odd |
| Full duplex/Half duplex | Half duplex |

*1 Adjust the settings with GOT settings.

# 13.6 DEVICE RANGE THAT CAN BE SET

The device ranges of controller that can be used for GOT are as follows.

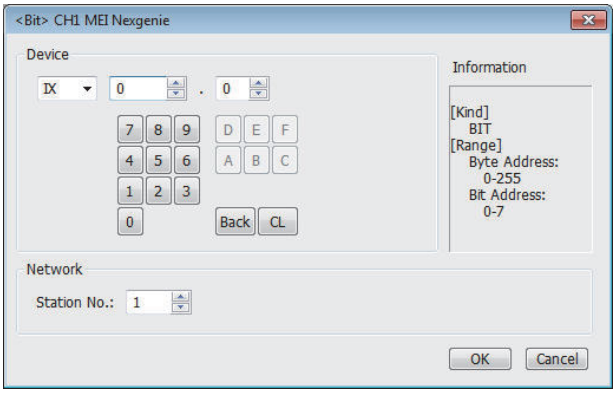
Note that the device ranges in the following tables are the maximum values that can be set in GT Designer3.

The device specifications of controllers may differ depending on the models, even though belonging to the same series.

Please make the setting according to the specifications of the controller actually used.

When a non-existent device or a device number outside the range is set, other objects with correct device settings may not be monitored.

## ■ Setting item

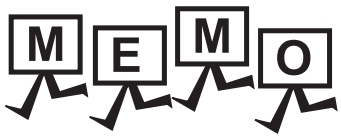



| Item | | Description |
|---|---|---|
| Device | | Set the device name, device number, and bit number. The bit number can be set only by specifying the bit of word device. |
| Information | | Displays the device type and setting range which are selected in [Device]. |
| Network | | Set the monitor target of the set device. |
| | Station No. | Select this item when monitoring the PLC of the Station No. (1 to 247) specified. |

## ■ Device Range

| | Device name | Setting range available | Device No. representation |
|---|---|---|---|
| Bit device | Input (IX) | IX0.0 to IX255.7 | Decimal + Octal |
| | Output (QX) | QX0.0 to QX255.7 | |
| | Marker BOOL (MX) | MX0.0 to MX8191.7 | |
| Word device | Input (IW) | W0 to IW254 | Hexadecimal |
| | Output (QW) | QW0 to QW254 | |
| | Marker (MW) | MW0 to MW32254 | |
| | System Word (SW)*1 | SW0 to SW468 | |

*1 Some System Word devices are read-only.
For details, refer to the following.
MITSUBISHI INDIA PLC user's Manual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# 14

# CONNECTION TO SICK SAFETY CONTROLLER


14.1 Connectable Model List . . . . . 14 - 2
14.2 System Configuration . . . . . 14 - 2
14.3 Connection Diagram . . . . . 14 - 3
14.4 GOT Side Settings . . . . . 14 - 4
14.5 PLC Side Setting . . . . . 14 - 5
14.6 Device Range That Can Be Set . . . . . 14 - 6

# 14. CONNECTION TO SICK SAFETY CONTROLLER

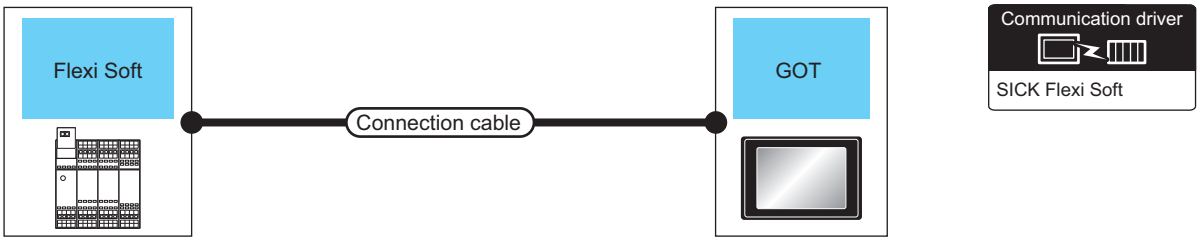
## 14.1 Connectable Model List

The following table shows the connectable models.

| Series | Model name | Clock | Communication Type | Connectable model | Refer to |
|---|---|---|---|---|---|
| Flexi Soft | FX3-CPU000000<br>FX3-CPU130002<br>FX3-CPU320002 | × | RS-232 | GT27 GT25 GT23 GT21 GS | 14.2.1 |

## 14.2 System Configuration

### 14.2.1 Connecting to Flexi Soft




| PLC | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Series | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| Flexi Soft | RS-232 | Part Number:6021195(2m)*1<br>Part Number:6036342(3m)*1 | 3m | - (Built into GOT) | GT27 GT25 GT23 GS | 1 PLC for 1 GOT |
| | | | | GT15-RS2-9P | GT27 GT25 | |
| | | | | GT10-C02H-6PT9P*2 | GT21 R4 GT21 R2 | |
| | | Part Number:6021195(2m)*1<br>Part Number:6036342(3m)*1<br>+<br>User preparing RS-232 connection diagram 1) | 3.3m | - (Built into GOT) | GT21 R4 GT21 R2 | |

*1 Product manufactured by SICK Inc. For details of the product, contact SICK Inc.

*2 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.

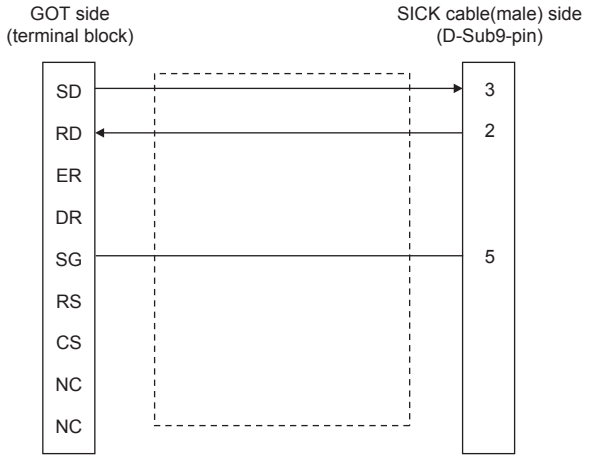
# 14.3 Connection Diagram

The following diagram shows the connection between the GOT and the PLC.

## 14.3.1 RS-232 cable

### ■ Connection diagram

RS-232 connection diagram 1)




### ■ Precautions when preparing a cable

(1) Cable length
The length of the RS-232 cable must be 30cm or less.

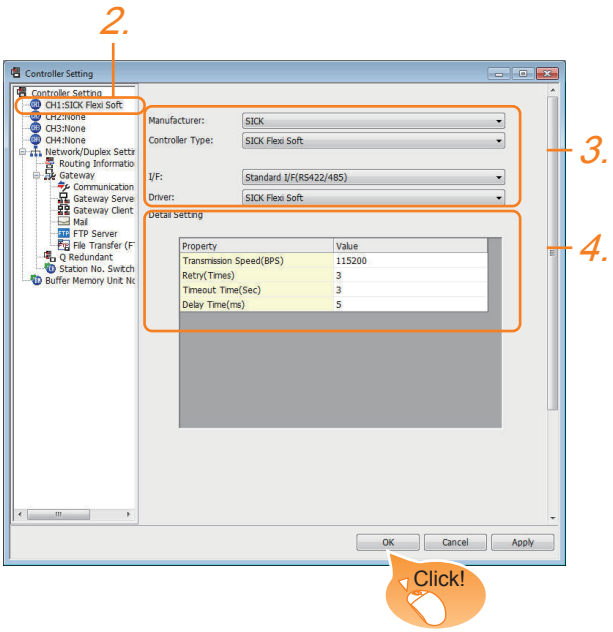
(2) GOT side connector
For the GOT side connector, refer to the following.
☞1.4.1 GOT connector specifications

(3) SICK PLC side connector
Use the connector compatible with the SICK PLC side module.
For details, refer to the user's manual of the SICK PLC.

# 14.4 GOT Side Settings

## 14.4.1 Setting communication interface (Communication settings)

Set the channel of the connected equipment.




1. Select [Common] → [Controller Setting] from the menu.
2. The Controller Setting window is displayed. Select the channel to be used from the list menu.
3. Set the following items.
   - Manufacturer: SICK
   - Controller Type: SICK Flexi Soft
   - I/F: Interface to be used
   - Driver: SICK Flexi Soft
4. The detailed setting is displayed after Manufacturer, Controller Type, I/F, and Driver are set.
   Make the settings according to the usage environment.
   14.4.2 Communication detail settings

Click the [OK] button when settings are completed.

**POINT**

The settings of connecting equipment can be confirmed in [I/F Communication Setting].
For details, refer to the following.
1.1.2 I/F communication setting

## 14.4.2 Communication detail settings

Make the settings according to the usage environment.

(1) SICK Flexi Soft

| Property | Value |
|---|---|
| Transmission Speed(BPS) | 115200 |
| Retry(Times) | 3 |
| Timeout Time(Sec) | 3 |
| Delay Time(ms) | 5 |

| Item | Description | Range |
|---|---|---|
| Transmission Speed | Set this item when change the transmission speed used for communication with the connected equipment.<br>(Default: 115200bps) | 9600bps, 19200bps, 38400bps, 57600bps, 115200bps |
| Retry | Set the number of retries to be performed when a communication error occurs.<br>(Default: 3times) | 0 to 5times |
| Timeout Time | Set the time period for a communication to time out.<br>(Default: 3sec) | 1 to 30sec |
| Delay Time | Set this item to adjust the transmission timing of the communication request from the GOT.<br>(Default: 5ms) | 0 to 300 (ms) |

**POINT**

(1) Communication interface setting by the Utility
The communication interface setting can be changed on the Utility's [Communication setting] after writing [Communication Settings] of project data.
For details on the Utility, refer to the following manual.
GOT2000 Series User's Manual (Utility)

(2) Precedence in communication settings
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

# 14.5 PLC Side Setting

**POINT**

SICK PLC

For details of SICK PLCs, refer to the following manual.

☞ User's Manual of the SICK PLC

## 14.5.1 Connecting to Flexi Soft

### ■ Communication settings

Communication settings are not required, since the following contents are fixed.

| Setting item | Controller Side Settings |
|---|---|
| Communication speed | 115200bps (fixed) |
| Data bit | 8bits (fixed) |
| Parity bit | Without (fixed) |
| Stop bit | 1bit (fixed) |

# 14.6 Device Range That Can Be Set

The device ranges of controller that can be used for GOT are as follows.

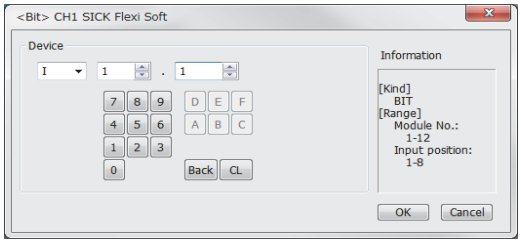
Note that the device ranges in the following tables are the maximum values that can be set in GT Designer3.

The device specifications of controllers may differ depending on the models, even though belonging to the same series.

Please make the setting according to the specifications of the controller actually used.

When a non-existent device or a device number outside the range is set, other objects with correct device settings may not be monitored.

## ■ Setting item

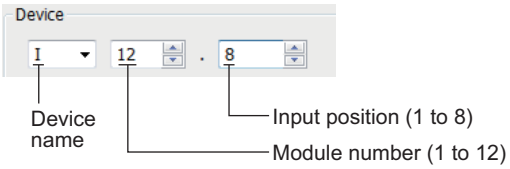



| Item | Description |
|---|---|
| Device | Set the device name, device number, and bit number. The bit number can be set only by specifying the bit of word device. |
| Information | Displays the device type and its setting range selected in [Device]. |

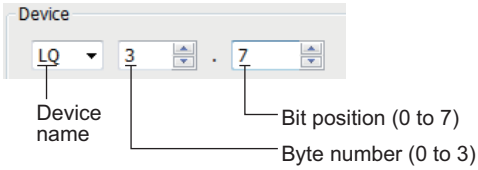
**POINT**

(1) Device settings of SICK Safety controller

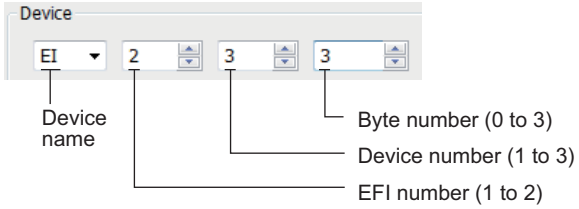
(a) Input (I), Output (Q)



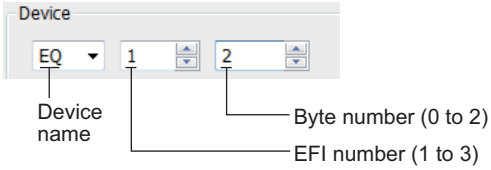

(b) Logic result (LQ), Logic input (LI)




(c) EFI input (EI)




(d) EFI output (EQ)




(2) Engineering software for SICK and device representation of GT Designer3

The engineering software for SICK and the device representation of GT Designer3 are different. Set the device by referring to the following table.

| Device | GT Designer3 | Engineering software for SICK |
|---|---|---|
| I*1 | I□□.△<br>□□(1-12(Dec)): Module number<br>△(1-8): Input position | ▲▲▲▲[□□].I△<br>▲▲▲▲: I/O model name (such as XTIO)<br>□□(1-12(Dec)): Module number<br>△(1-8): Input position |
| Q*1 | Q□□.△<br>□□(1-12(Dec)): Module number<br>△(1-8): Output position | ▲▲▲▲[□□].Q△<br>▲▲▲▲: I/O model name (such as XTIO)<br>□□(1-12(Dec)): Module number<br>△(1-8): Output position |
| LQ*1 | LQ□.△<br>□(0-3): Byte number<br>△(0-7): Bit position | ▲▲ □.△<br>▲▲: "Result"<br>□(0-3): Byte number<br>△(0-7): Bit position |
| LI*1 | LI□.△<br>□(0-3): Byte number<br>△(0-7): Bit position | ▲▲▲▲[0] .□.△<br>▲▲▲▲: CPU type(CPU0, CPU1)<br>□(0-3): Byte number<br>△(0-7): Bit position |
| EI*1 | EI○□△<br>○(1-2): EFI number<br>□(1-3): Device number<br>△(0-3): Byte number | ▲▲▲▲[0].EFI○:□,Byte△<br>▲▲▲▲: CPU type(CPU0, CPU1)<br>○(1-2): EFI number<br>□(1-3): Device number<br>△(0-3): Byte number |
| EQ*1 | EQ○△<br>○(1-2): EFI number<br>△(0-2): Byte number | ▲▲▲▲[0].EFI○:1,Byte△<br>▲▲▲▲: CPU type(CPU0, CPU1)<br>○(1-2): EFI number<br>△(0-2): Byte number |
| D | D△<br>△(0-99(Dec)): Byte number | RS232 data<br>(Safety controller to RS232) |
| W | W△<br>△(0-49(Dec)): Word number<br>Word virtualization of D device<br>W0= (D1(Upper bits), D0(Lower bits)) | GOT independent device<br>(Not available) |
| LD | LD△<br>△(0-3): Byte number | RS232 data<br>(RS232 to safety controller) |
| LW | LW△<br>△(0-1): Word number<br>Word virtualization of LD device<br>LW0= (LD1(Upper bits), LD0(Lower bits)) | GOT independent device<br>(Not available) |

*1 When the mapping position is changed by the engineering software for SICK, a mismatch occurs between virtual devices on GOT and SICK safety controller mapping devices.
When mapping is changed, use D devices or LD devices.

(3) When using offset specification

When setting devices using the offset function, the device values are as follows.

(a) Input (I)

| Offset | +0 | +1 | +2 | +3 | +4 | +5 | +6 | +7 | +8 to +15 |
|---|---|---|---|---|---|---|---|---|---|
| +0 | I1.1 | I1.2 | I1.3 | I1.4 | I1.5 | I1.6 | I1.7 | I1.8 | Fixed to 0 (OFF) |
| +16 | I2.1 | I2.2 | I2.3 | I2.4 | I2.5 | I2.6 | I2.7 | I2.8 | |
| +32 | I3.1 | I3.2 | I3.3 | I3.4 | I3.5 | I3.6 | I3.7 | I3.8 | |
| +48 | I4.1 | I4.2 | I4.3 | I4.4 | I4.5 | I4.6 | I4.7 | I4.8 | |
| +64 | I5.1 | I5.2 | I5.3 | I5.4 | I5.5 | I5.6 | I5.7 | I5.8 | |
| +80 | I6.1 | I6.2 | I6.3 | I6.4 | I6.5 | I6.6 | I6.7 | I6.8 | |
| +96 | I7.1 | I7.2 | I7.3 | I7.4 | I7.5 | I7.6 | I7.7 | I7.8 | |
| +112 | I8.1 | I8.2 | I8.3 | I8.4 | I8.5 | I8.6 | I8.7 | I8.8 | |
| +128 | I9.1 | I9.2 | I9.3 | I9.4 | I9.5 | I9.6 | I9.7 | I9.8 | |
| +144 | I10.1 | I10.2 | I10.3 | I10.4 | I10.5 | I10.6 | I10.7 | I10.8 | |
| +160 | I11.1 | I11.2 | I11.3 | I11.4 | I11.5 | I11.6 | I11.7 | I11.8 | |
| +176 | I12.1 | I12.2 | I12.3 | I12.4 | I12.5 | I12.6 | I12.7 | I12.8 | |
| +192 | Device range error | | | | | | | | |

(b) Output (Q)

| Offset | +0 | +1 | +2 | +3 | +4 | +5 | +6 | +7 | +8 to +15 |
|---|---|---|---|---|---|---|---|---|---|
| +0 | Q1.1 | Q1.2 | Q1.3 | Q1.4 | Q1.5 | Q1.6 | Q1.7 | Q1.8 | Fixed to 0 (OFF) |
| +16 | Q2.1 | Q2.2 | Q2.3 | Q2.4 | Q2.5 | Q2.6 | Q2.7 | Q2.8 | |
| +32 | Q3.1 | Q3.2 | Q3.3 | Q3.4 | Q3.5 | Q3.6 | Q3.7 | Q3.8 | |
| +48 | Q4.1 | Q4.2 | Q4.3 | Q4.4 | Q4.5 | Q4.6 | Q4.7 | Q4.8 | |
| +64 | Q5.1 | Q5.2 | Q5.3 | Q5.4 | Q5.5 | Q5.6 | Q5.7 | Q5.8 | |
| +80 | Q6.1 | Q6.2 | Q6.3 | Q6.4 | Q6.5 | Q6.6 | Q6.7 | Q6.8 | |
| +96 | Q7.1 | Q7.2 | Q7.3 | Q7.4 | Q7.5 | Q7.6 | Q7.7 | Q7.8 | |
| +112 | Q8.1 | Q8.2 | Q8.3 | Q8.4 | Q8.5 | Q8.6 | Q8.7 | Q8.8 | |
| +128 | Q9.1 | Q9.2 | Q9.3 | Q9.4 | Q9.5 | Q9.6 | Q9.7 | Q9.8 | |
| +144 | Q10.1 | Q10.2 | Q10.3 | Q10.4 | Q10.5 | Q10.6 | Q10.7 | Q10.8 | |
| +160 | Q11.1 | Q11.2 | Q11.3 | Q11.4 | Q11.5 | Q11.6 | Q11.7 | Q11.8 | |
| +176 | Q12.1 | Q12.2 | Q12.3 | Q12.4 | Q12.5 | Q12.6 | Q12.7 | Q12.8 | |
| +192 | Device range error | | | | | | | | |

(c) Logic result (LQ)

| Offset | +0 | +1 | +2 | +3 | +4 | +5 | +6 | +7 |
|---|---|---|---|---|---|---|---|---|
| +0 | LQ0.0 | LQ0.1 | LQ0.2 | LQ0.3 | LQ0.4 | LQ0.5 | LQ0.6 | LQ0.7 |
| +8 | LQ1.0 | LQ1.1 | LQ1.2 | LQ1.3 | LQ1.4 | LQ1.5 | LQ1.6 | LQ1.7 |
| +16 | LQ2.0 | LQ2.1 | LQ2.2 | LQ2.3 | LQ2.4 | LQ2.5 | LQ2.6 | LQ2.7 |
| +24 | LQ3.0 | LQ3.1 | LQ3.2 | LQ3.3 | LQ3.4 | LQ3.5 | LQ3.6 | LQ3.7 |
| +32 | Device range error | | | | | | | |

(d) Logic input (LI)

| Offset | +0 | +1 | +2 | +3 | +4 | +5 | +6 | +7 |
|---|---|---|---|---|---|---|---|---|
| +0 | LI0.0 | LI0.1 | LI0.2 | LI0.3 | LI0.4 | LI0.5 | LI0.6 | LI0.7 |
| +8 | LI1.0 | LI1.1 | LI1.2 | LI1.3 | LI1.4 | LI1.5 | LI1.6 | LI1.7 |
| +16 | LI2.0 | LI2.1 | LI2.2 | LI2.3 | LI2.4 | LI2.5 | LI2.6 | LI2.7 |
| +24 | LI3.0 | LI3.1 | LI3.2 | LI3.3 | LI3.4 | LI3.5 | LI3.6 | LI3.7 |
| +32 | Device range error | | | | | | | |

(e) EFI input (EI)

| Offset | +0 | +1 | +2 | +3 | +8 to +15 |
|---|---|---|---|---|---|
| +0 | EI110 | EI111 | EI112 | EI113 | Fixed to 0 |
| +16 | EI120 | EI121 | EI122 | EI123 | |
| +32 | EI130 | EI131 | EI132 | EI133 | |
| +48 : +240 | Fixed to 0 | | | | |
| +256 | EI210 | EI211 | EI212 | EI213 | |
| +272 | EI220 | EI221 | EI222 | EI223 | |
| +288 | EI230 | EI231 | EI232 | EI233 | Device range error |
| +302 | Device range error | | | | |

(f) EFI output (EQ)

| Offset | +0 | +1 | +2 | +3 to +15 |
|---|---|---|---|---|
| +0 | EQ10 | EQ11 | EQ12 | Fixed to 0 |
| +16 : +240 | Fixed to 0 | | | |
| +256 | EQ20 | EQ21 | EQ22 | Device range error |
| +272 | Device range error | | | |

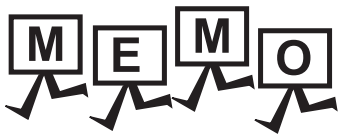
## 14.6.1 SICK Safety Controller (SICK Flexi Soft)

| | Device | Setting range | | | Device No. representation |
|---|---|---|---|---|---|
| Bit device | Input (I) | I1.1 | to | I12.8 | Decimal +Decimal |
| | Output (Q) | Q1.1 | to | Q12.8 | |
| | Logic result (LQ) | LQ0.0 | to | LQ3.7 | |
| | Logic input (LI) | LI0.0 | to | LI3.7 | |
| | The bit specification of the word device | Setting range of each word device | | | - |
| Word device | Data (byte)(D) | D0 | to | D99 | Decimal |
| | Data (word)(W) | W0 | to | W49 | |
| | EFI input (byte)(EI) | EI110 | to | EI233 | Decimal +Decimal +Decimal |
| | EFI output (byte)(EQ) | EQ10 | to | EQ22 | Decimal +Decimal |
| | Logic input (byte)(LD) | LD0 | to | LD3 | Decimal |
| | Logic input (word)(LW) | LW0 | to | LW1 | Decimal |

POINT

Device of SICK Flexi Soft

Only reading is possible for all devices.


MEMO

# 15

# CONNECTION TO SIEMENS PLC


15.1 Connectable Model List . . . . . 15 - 2
15.2 Serial Connection . . . . . 15 - 3
15.3 Ethernet Connection . . . . . 15 - 10
15.4 Device Range that Can Be Set . . . . . 15 - 17

# 15. CONNECTION TO SIEMENS PLC

## 15.1 Connectable Model List

The following table shows the connectable models.

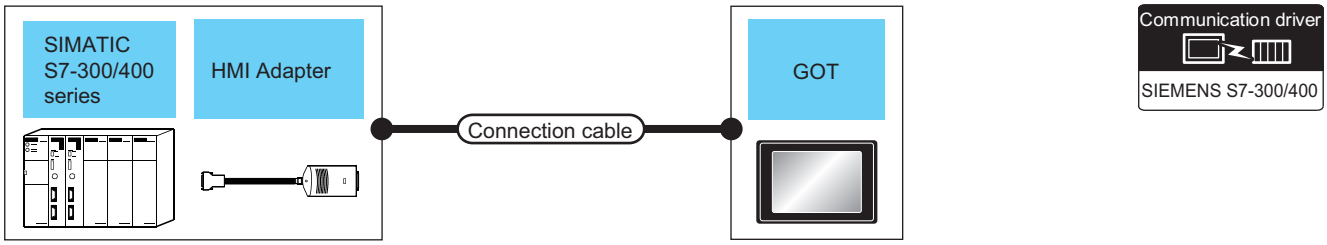
| Series | Clock | Communication Type | Ethernet Connection Type | Connectable model | Refer to |
|---|---|---|---|---|---|
| SIMATIC S7-200 | × | RS-232 | - | GT27 GT25 GT23 GT21 GS | 15.2.2 |
| | | Ethernet | OP communication | GT27 GT25 GT23 | 15.3.2 |
| SIMATIC S7-300 | ○*1 | RS-232 | - | GT27 GT25 GT23 GT21 GS | 15.2.1 |
| | | Ethernet | FETCH/ WRITE | GT27 GT25 GT23 | 15.3.1 |
| | | | OP communication | GT27 GT25 GT23 | 15.3.2 |
| SIMATIC S7-400 | ○*1 | RS-232 | - | GT27 GT25 GT23 GT21 GS | 15.2.1 |
| | | Ethernet | FETCH/ WRITE | GT27 GT25 GT23 | 15.3.1 |
| | | | OP communication | GT27 GT25 GT23 | 15.3.2 |
| SIMATIC S7-1200 | × | Ethernet | OP communication | GT27 GT25 GT23 | 15.3.2 |

*1 Not available with the Ethernet connection.

# 15.2 Serial Connection

## 15.2.1 System configuration for connecting to SIMATIC S7-300/400 series

■ When connecting to one PLC

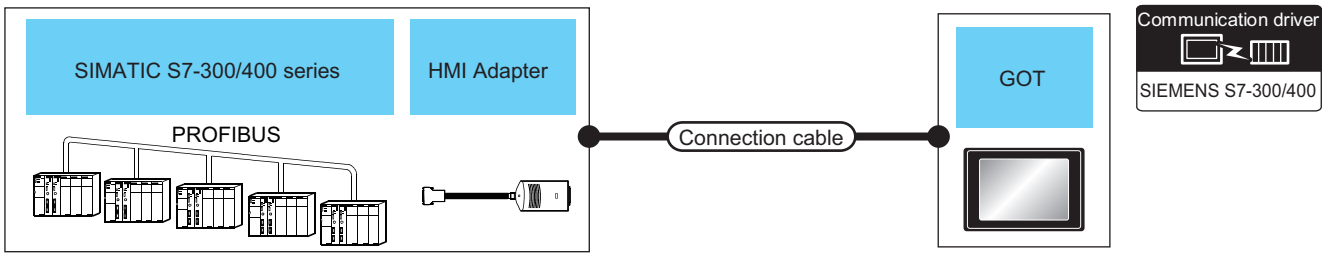



| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Series | HMI Adapter*1 | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| SIMATIC S7-300/400 | MLFB: 6ES7 972-0CA11-0XA0 | RS-232 | GT09-C30R20801-9S (3m) or User preparing RS232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 GS | 1 GOT for 1 HMI Adapter |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | | | | | GT10-C02H-6PT9P*2 | GT21 03P R4 GT21 03P R2 | |
| | | | User preparing RS232 connection diagram 2) | 15m | - (Built into GOT) | GT21 04R GT21 03P R2 | |

*1 Product manufactured by Siemens AG. For details of this product, contact Siemens AG.

*2 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.

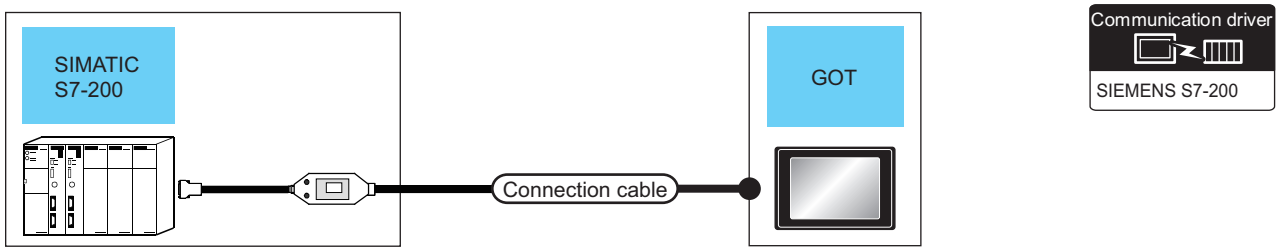
■ When connecting to multiple PLCs




| PLC | | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|---|
| Series | HMI Adapter*1 | Communication Type | Cable model Connection diagram number | Max. distance | Option device | Model | |
| SIMATIC S7-300/400 | MLFB: 6ES7 972-0CA11-0XA0 | RS-232 | GT09-C30R20801-9S (3m) or User preparing RS232 connection diagram 1) | 15m | - (Built into GOT) | GT27 GT25 GT23 GS | 1 GOT for 1 HMI Adapter |
| | | | | | GT15-RS2-9P | GT27 GT25 | |
| | | | | | GT10-C02H-6PT9P*2 | GT21 R4 GT21 R2 | |
| | | | User preparing RS232 connection diagram 2) | 15m | - (Built into GOT) | GT21 R4 GT21 R2 | |

*1 Product manufactured by Siemens AG. For details of this product, contact Siemens AG.
*2 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.

## 15.2.2 System configuration for connecting to SIMATIC S7-200




| PLC | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Series | Communication Type | Cable model<br>Connection diagram number | Max. distance | Option device | Model | |
| SIMATIC S7-200 | RS-232 | 6ES7 901-3BF20-0XA0*1<br>6ES7 901-3CB30-0XA0*1 | 15m | - (Built into GOT) | GT27 GT25 GT23 GS | 1 GOT for 1 PLC |
| | | | | GT15-RS2-9P | GT27 GT25 | |
| | | | | GT10-C02H-6PT9P*2 | GT03P-21R4 GT03P-21R2 | |
| | | 6ES7 901-3BF20-0XA0*1<br>6ES7 901-3CB30-0XA0*1<br>+<br>User preparing RS232 connection diagram 3) | 15m | - (Built into GOT) | GT04R-21 GT03P-21R2 | |

*1 Product manufactured by Siemens AG. For details of this product, contact Siemens AG.

*2 When a GT10-C02H-6PT9P unit of the sub version A or B is used, do not ground the case of the D-sub (9-pin) connector.

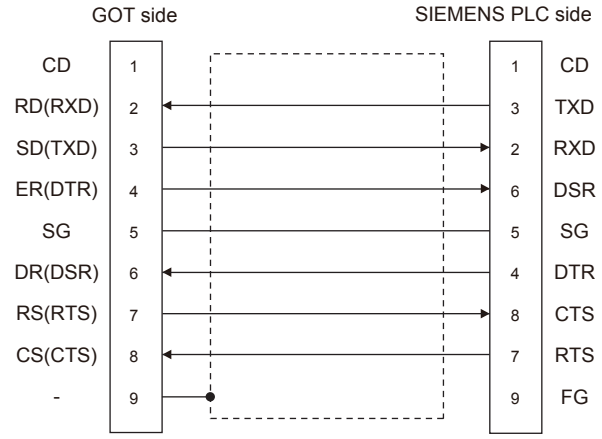
## 15.2.3 Connection Diagram

The following diagram shows the connection between the GOT and the PLC.

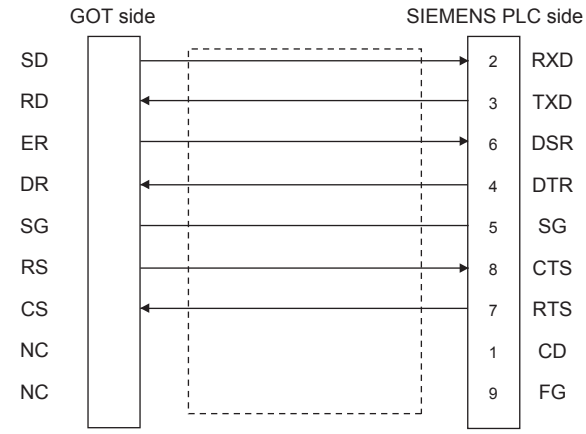
### ■ RS-232 cable

(1) Connection diagram

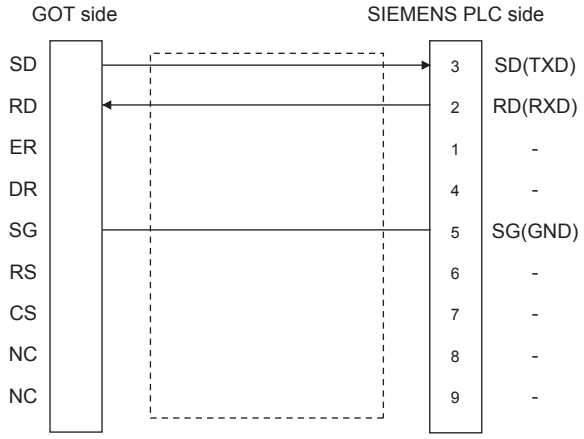
(a) RS232 connection diagram 1)




(b) RS232 connection diagram 2)




(c) RS232 connection diagram 3)




(2) Precautions when preparing a cable

(a) Cable length
The length of the RS-232 cable must be 15m or less.

(b) GOT side connector
For the GOT side connector, refer to the following.

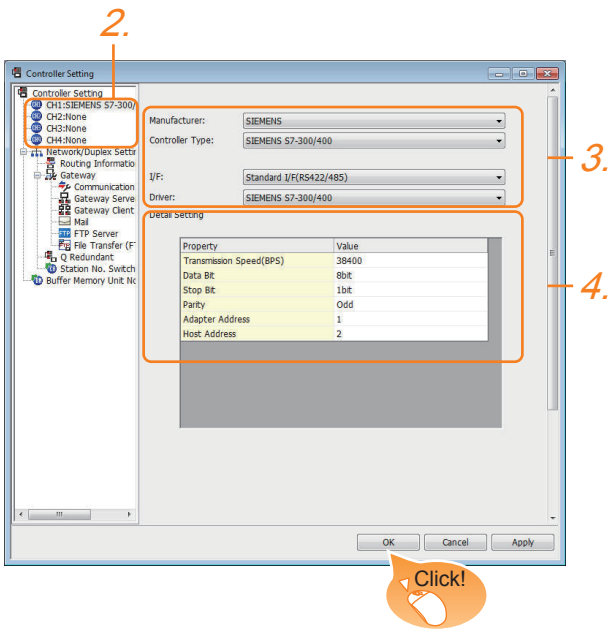
☞ 1.4.1 GOT connector specifications

(c) SIEMENS PLC side connector
Use the connector compatible with the SIEMENS PLC side.
For details, refer to the SIEMENS PLC user's manual.

## 15.2.4 GOT Side Settings

### ■ Setting communication interface (Communication settings)

Set the channel of the connected equipment.




1. Select [Common] → [Controller Setting] from the menu.
2. The Controller Setting window is displayed. Select the channel to be used from the list menu.
3. Set the following items.
   - Manufacturer: SIEMENS
   - Controller Type: Set either of the following.
     S7-300/400
     S7-200
   - I/F: Interface to be used
   - Driver: Set either of the following.
     - When connecting to SIEMENS S7-300/400: SIEMENS S7-300/400
     - When connecting to SIEMENS S7-200: SIEMENS S7-200
4. The detailed setting is displayed after Manufacturer, Controller Type, I/F, and Driver are set.
   Make the settings according to the usage environment.
   15.2.4 ■Communication detail settings

Click the [OK] button when settings are completed.

**POINT**

The settings of connecting equipment can be confirmed in [I/F Communication Setting].
For details, refer to the following.
1.1.2 I/F communication setting

### ■ Communication detail settings

Make the settings according to the usage environment.

(1) SIEMENS S7-300/400

| Property | Value |
|---|---|
| Transmission Speed(BPS) | 38400 |
| Data Bit | 8 bit |
| Stop Bit | 1 bit |
| Parity | Odd |
| Adapter Address | 1 |
| Host Address | 2 |

| Item | Description | Range |
|---|---|---|
| Transmission Speed*2 | Set this item when change the transmission speed used for communication with the connected equipment. (Default: 38400bps) | 9600bps, 19200bps, 38400bps |
| Data Bit | Set this item when change the data length used for communication with the connected equipment. (Default: 8bit) | 8bit (fixed) |
| Stop Bit | Specify the stop bit length for communications. (Default: 1bit) | 1bit (fixed) |
| Parity | Specify whether or not to perform a parity check, and how it is performed during communication. (Default: Odd) | Odd (fixed) |
| Adapter Address*1*2 | Specify the adapter address (station No. of the adapter to which the GOT is connected) in the connected network. (Default: 1) | 1 to 31 |
| Host Address*1*2 | Specify the host address (station No. of the PLC that the GOT will monitor) in the connected network. (Default: 2) | 1 to 31 |

*1 Set the address without overlapping the address of other units.
*2 The GOT automatically sets the values of Transmission Speed, Adapter Address, and Host Address to the HMI Adapter.

(2) SIEMENS S7-200

| Property | Value |
|---|---|
| Transmission Speed(BPS) | 19200 |
| Data Bit | 8 bit |
| Stop Bit | 1 bit |
| Parity | Even |
| Adapter Address | 0 |
| Host Address | 2 |

| Item | Description | Range |
|---|---|---|
| Transmission Speed | Set this item when change the transmission speed used for communication with the connected equipment.<br>(Default: 19200bps) | 9600bps,<br>19200bps,<br>38400bps,<br>57600bps,<br>115200bps |
| Data Bit | Set this item when change the data length used for communication with the connected equipment.<br>(Default: 8bits) | 7bits/8bits |
| Stop Bit | Specify the stop bit length for communications.<br>(Default: 1bit) | 1bit/2bits |
| Parity | Specify whether or not to perform a parity check, and how it is performed during communication.<br>(Default: Even) | None<br>Even<br>Odd |
| Adapter Address | Specify the adapter address (station No. of the adapter to which the GOT is connected) in the connected network.<br>(Default: 0) | 0 to 31 |
| Host Address | Specify the host address (station No. of the PLC that the GOT will monitor) in the connected network.<br>(Default: 2) | 1 to 31 |

POINT

(1) Communication interface setting by the Utility
The communication interface setting can be changed on the Utility's [Communication setting] after writing [Communication Settings] of project data.
For details on the Utility, refer to the following manual.

GOT2000 Series User's Manual (Utility)

(2) Precedence in communication settings
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

## 15.2.5 PLC Side Setting

POINT

SIEMENS PLC
For details of SIEMENS PLCs, refer to the following manuals.

SIEMENS PLC user's Manual

| Model name | | Refer to |
|---|---|---|
| PLC CPU | S7-200 | 15.2.7 |
| HMI Adapter | 6ES7 972-0CA11-0XA0 | 15.2.6 |
| PC/PPI cable | 6ES7 901-3BF20-0XA0<br>6ES7 901-3CB30-0XA0 | 15.2.7 |

## 15.2.6 Connecting to HMI Adapter

### ■ Communication settings

The following communication settings are made at the communication detail settings of the GOT side.
For details, refer to the following.

15.2.4 ■Communication detail settings

| Setting item | PLC side setting |
|---|---|
| Transmission speed | 9600bps, 19200bps, 38400bps |
| Data bit | 8bits (fixed) |
| Parity bit | Odd (fixed) |
| Stop bit | 1bit (fixed) |
| Adapter address | 1 to 31 |
| Host address | 1 to 31 |

## 15.2.7 Connecting to SIMATIC S7-200

### ■ Communication settings

Set the communication settings of PLC and PC/PPI cable.

(1) PLC settings

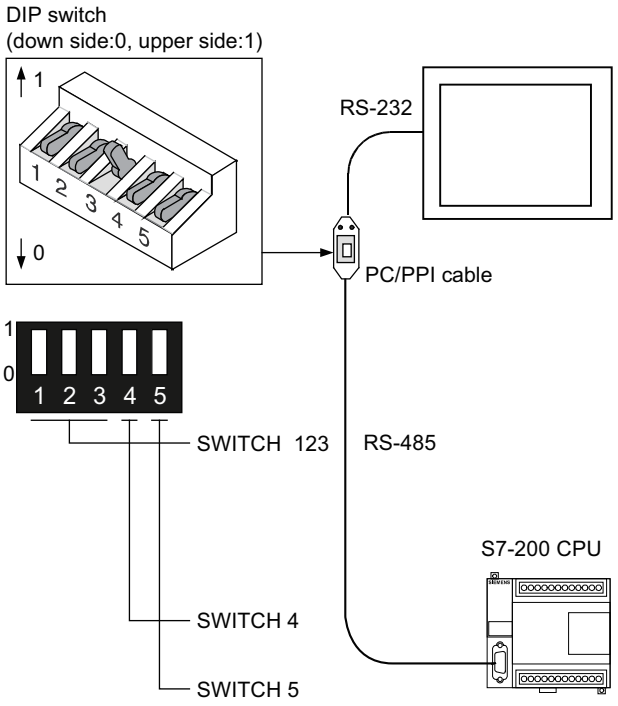
Set the communication settings of PLC by operating the SIEMENS programming tool(STEP7-WIN32).

| Setting item | PLC Side Setting |
|---|---|
| Transmission speed*1 | 9600bps, 19200bps |
| Data bit | 8bits (fixed) |
| Parity bit | Even (fixed) |
| Stop bit | 1bit (fixed) |
| Host address*2 | 1 to 31 |

*1 Adjust the settings with GOT settings.
*2 Set the address without overlapping the address of other units.

(2) PC/PPI cable settings

Set the transmission speed by operating the DIP switch on the PC/PPI cable.




| SWITCH 1 | SWITCH 2 | SWITCH 3 | SWITCH 4 | SWITCH 5 | Transmission speed |
|---|---|---|---|---|---|
| 0 | 0 | 1 | 0 | 0 | 19200bps*1 |
| 0 | 1 | 0 | 0 | 0 | 9600bps*1 |

*1 Adjust with GOT settings.

## 15.2.8 Precautions

### ■ GOT alarm list (system alarm) function

Error information cannot be monitored when the GOT is connected to a SIEMENS PLC.
(The error information on the PLC CPU side can be monitored.)
For details on the alarm list (system alarm), refer to the following manual:

☞ GT Designer3 (GOT2000) Help

(1) When powering ON the system

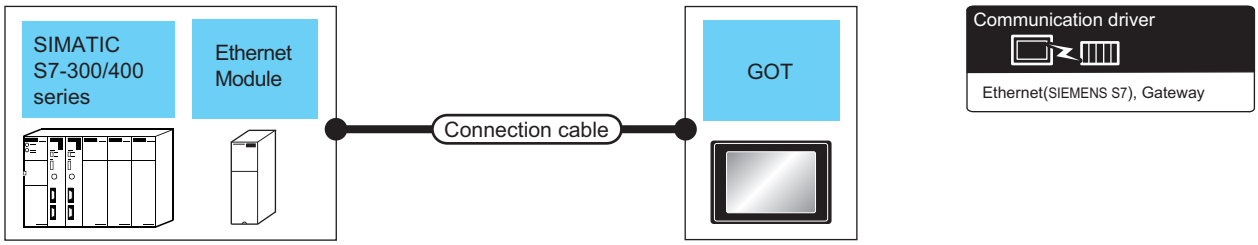
Turn ON all PLC CPUs before turning ON the GOT.
If the GOT is turned ON before power-up of the PLC CPUs, restart the GOT.

(2) When powering OFF a PLC CPU at another station

When a PLC CPU at another station (the PLC CPU to which the HMI Adapter is not connected) is turned OFF, monitoring by the GOT is stopped.
To resume the monitoring, restart the GOT.
(Monitoring will not be resumed on GOT even if the PLC CPU is turned ON again.)

# 15.3 Ethernet Connection

## 15.3.1 System configuration for connecting to SIMATIC S7-300/400 series (Ethernet connection type: FETCH/WRITE)




| PLC | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Series | Ethernet Module*3 | Cable model*1 | Maximum segment length*2 | Option device | Model | |
| SIMATIC S7-300 | CP343-1 IT<br>CP343-1<br>CP343-1 Lean<br>CP343-1 Advanced | • 100BASE-TX<br>Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 5 or higher<br>• 10BASE-T<br>Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 3 or higher | 100m | - (Built into GOT) | GT27 GT25 GT23 | When PLC:GOT is N:1<br>16 PLCs or less for 1 GOT<br><br>When PLC:GOT is 1:N<br>The following shows the number of GOTs for 1 PLC<br>32 or less*4 (recommended to 16 or less) |
| SIMATIC S7-400 | CP443-1 IT<br>CP443-1 | | | | | |

*1 The destination connected with the twisted pair cable varies with the configuration of the applicable Ethernet network system.
Connect to the Ethernet module, hub, transceiver or other system equipment corresponding to the applicable Ethernet network system.
Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standards.

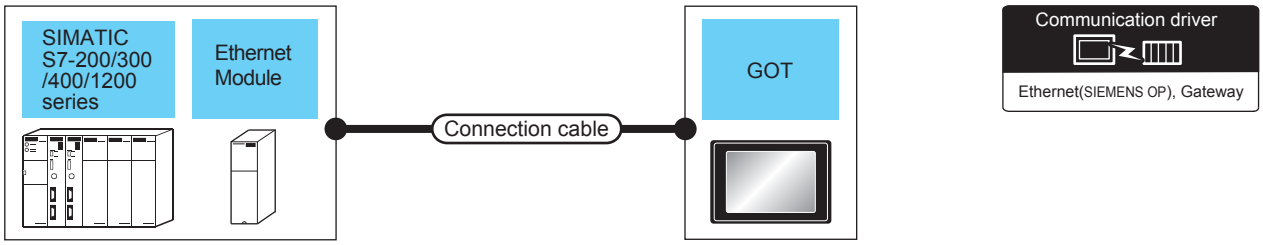
*2 A length between a hub and a node.
The maximum distance differs depending on the Ethernet device to be used.
The following shows the number of the connectable nodes when a repeater hub is used.
- 10BASE-T: Max. 4 nodes for a cascade connection (500m)
- 100BASE-TX: Max. 2 nodes for a cascade connection (205m)

When switching hubs are used, the cascade connection between the switching hubs has no logical limit for the number of cascades.
For the limit, contact the switching hub manufacturer.

*3 Product manufactured by Siemens AG. For details of the product, contact Siemens AG.

*4 If the number of GOTs increases, the communication becomes highloaded, and it may affect the communication performance.

## 15.3.2 System configuration for connecting to SIMATIC S7-200/300/400/1200 series (Ethernet connection type: OP communication)




| PLC | | Connection cable | | GOT | | Number of connectable equipment |
|---|---|---|---|---|---|---|
| Series | Ethernet Module*3 | Cable model*1 | Maximum segment length*2 | Option device | Model | |
| SIMATIC S7-200 | CP 243-1<br>CP 243-1 IT | • 100BASE-TX<br>Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 5 or higher<br>• 10BASE-T<br>Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP) of category 3 or higher | 100m | - (Built into GOT) | GT27 GT25 GT23 | When PLC:GOT is N:1<br>128 PLCs or less for 1 GOT<br><br>When PLC:GOT is 1:N<br>The following shows the number of GOTs for 1 PLC<br>32 or less*4 (recommended to 16 or less) |
| SIMATIC S7-300 | CP 343-1<br>CP 343-1 Lean<br>CP 343-1 Advanced-IT | | | | | |
| | - (Built into GOT) | | | | | |
| SIMATIC S7-400 | CP 443-1<br>CP 443-1 Advanced-IT | | | | | |
| | - (Built into GOT) | | | | | |
| SIMATIC S7-1200 | - (Built into GOT) | | | | | |

*1 The destination connected with the twisted pair cable varies with the configuration of the applicable Ethernet network system.
Connect to the Ethernet module, hub, transceiver or other system equipment corresponding to the applicable Ethernet network system.
Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standards.

*2 A length between a hub and a node.
The maximum distance differs depending on the Ethernet device to be used.
The following shows the number of the connectable nodes when a repeater hub is used.
- 10BASE-T: Max. 4 nodes for a cascade connection (500m)
- 100BASE-TX: Max. 2 nodes for a cascade connection (205m)

When switching hubs are used, the cascade connection between the switching hubs has no logical limit for the number of cascades.
For the limit, contact the switching hub manufacturer.

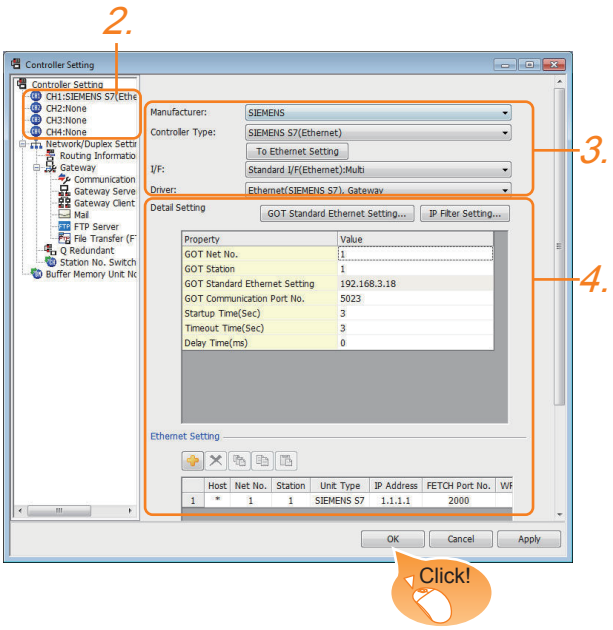
*3 Product manufactured by Siemens AG. For details of the product, contact Siemens AG.

*4 If the number of GOTs increases, the communication becomes highloaded, and it may affect the communication performance.

## 15.3.3 GOT Side Settings

### ■ Setting communication interface (Communication settings)

Set the channel of the connected equipment.




1. Select [Common] → [Controller Setting] from the menu.
2. The Controller Setting window is displayed. Select the channel to be used from the list menu.
3. Set the following items.
   - Manufacturer: SIEMENS
   - Controller Type: Depends on Ethernet connection type.
     FETCH/WRITE: SIEMENS S7 (Ethernet)
     OP communication: SIEMENS OP (Ethernet)
   - I/F: Interface to be used
   - Driver: Depends on Ethernet connection type.
     FETCH/WRITE: Ethernet (SIEMENS S7), Gateway
     OP communication: Ethernet (SIEMENS OP), Gateway
4. The detailed setting is displayed after Manufacturer, Controller Type, I/F, and Driver are set.
   Make the settings according to the usage environment.
   ☞ 15.3.3 ■Communication detail settings

Click the [OK] button when settings are completed.

**POINT**

The settings of connecting equipment can be confirmed in [I/F Communication Setting].
For details, refer to the following.
☞ 1.1.2 I/F communication setting

### ■ Communication detail settings

Make the settings according to the usage environment.

| Property | Value |
|---|---|
| GOT Net No. | 1 |
| GOT Station | 1 |
| GOT Ethernet Setting | 192.168.3.18 |
| GOT Communication Port No. | 5023 |
| Startup Time(Sec) | 3 |
| Timeout Time(Sec) | 3 |
| Delay Time(ms) | 0 |

| Item | Description | Range |
|---|---|---|
| GOT Net No. | Set the network No. of the GOT. (Default: 1) | 1 to 239 |
| GOT Station*1 | Set the station No. of the GOT. (Default: 1) | 1 to 254 |
| GOT Ethernet Setting | Set the GOT IP address, subnet mask, default gateway, peripheral S/W communication port No., transparent port No. | ☞ GOT Ethernet setting |
| GOT Communication Port No. | Set the GOT port No. for the connection with the Ethernet module. (Default:) Ethernet (SIEMENS S7), Gateway: 5023 Ethernet (SIEMENS OP), Gateway: 5024 | 1024 to 5010, 5023 to 65534 (Except for 5011, 5012, 5013, and 49153) |
| Startup Time | Specify the time period from the GOT startup until GOT starts the communication with the PLC CPU. (Default: 3sec) | 3 to 255 sec |
| Timeout Time | Set the time period for a communication to time out. (Default: 3sec) | 3 to 90 sec |
| Delay Time | Set the delay time for reducing the load of the network/destination PLC. (Default: 0ms) | 0 to 10000 (× 10ms) |

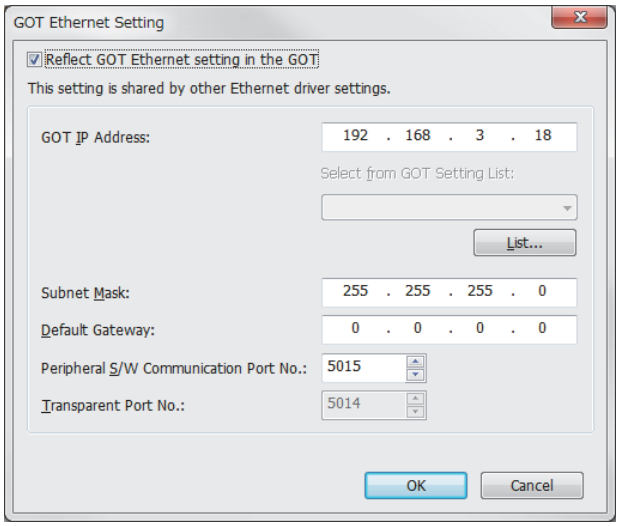
*1 Each of [GOT Station] set in the communication detail setting and [Station] set in the Ethernet setting must be set to different station numbers.
☞ ■ Ethernet setting

**POINT**

(1) Communication interface setting by the Utility
The communication interface setting can be changed on the Utility's [Communication setting] after writing [Communication Settings] of project data.
For details on the Utility, refer to the following manual.
☞ GOT2000 Series User's Manual (Utility)

(2) Precedence in communication settings
When settings are made by GT Designer3 or the Utility, the latest setting is effective.

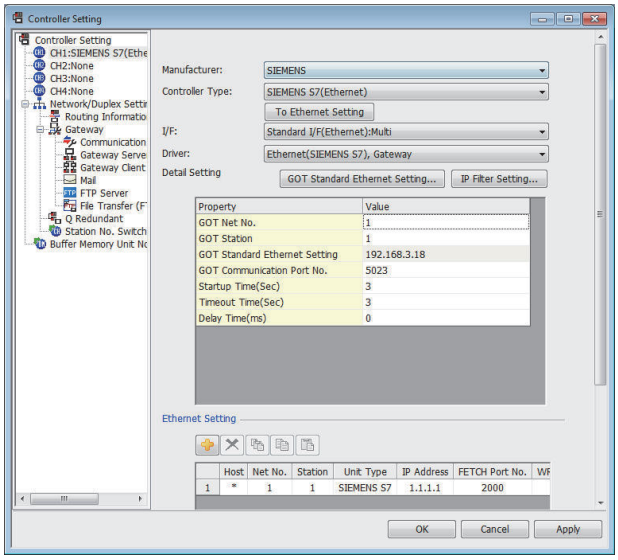
## ■ GOT Ethernet setting




| Item | Description | Range |
|---|---|---|
| GOT IP Address | Set the IP address of the GOT.<br>(Default: 192.168.0.18) | 0.0.0.0 to 255.255.255.255 |
| Subnet Mask | Set the subnet mask for the sub network. (Only for connection via router)<br>If the sub network is not used, the default value is set.<br>(Default: 255.255.255.0) | 0.0.0.0 to 255.255.255.255 |
| Default Gateway | Set the router address of the default gateway where the GOT is connected. (Only for connection via router)<br>(Default: 0.0.0.0) | 0.0.0.0 to 255.255.255.255 |
| Peripheral S/W Communication Port No. | Set the GOT port No. for the S/W communication.<br>(Default: 5015) | 1024 to 5010, 5014 to 65534 (Except for 5011, 5012, 5013, and 49153) |
| Transparent Port No. | Set the GOT port No. for the transparent function.<br>(Default: 5014) | 1024 to 5010, 5014 to 65534 (Except for 5011, 5012, 5013, and 49153) |

## ■ Ethernet setting

(1) Ethernet connection type: FETCH/WRITE
This section describes the Ethernet setting for the communication driver SIEMENS S7 (Ethernet).



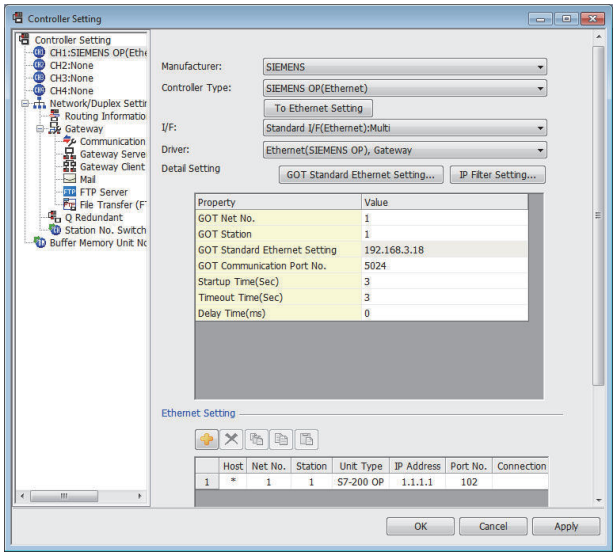

| Item | Description | Set value |
|---|---|---|
| Host | The host is displayed. (The host is indicated with an asterisk (*).) | — |
| Net No. | Set the network No. of the connected Ethernet module.<br>(Default: blank) | 1 to 239 |
| Station*1 | Set the station No. of the connected Ethernet module.<br>(Default: blank) | 1 to 64 |
| Type | SIEMENS S7 (fixed) | SIEMENS S7 (fixed) |
| IP Address | Set the IP address of the connected Ethernet module.<br>(Default: blank) | PLC side IP address |
| FETCH Port No. | Set the FETCH port No. of the connected Ethernet module.<br>(Default: 2000) | 1024 to 65534 |
| WRITE Port No. | For the WRITE port No. of the connected Ethernet module, the value that the FETCH port No. is incremented by one is set automatically.<br>(Default: 2001) | 1025 to 65535 |
| Communication | TCP (fixed) | TCP (fixed) |

*1 Each of [GOT Station] set in the communication detail setting and [Station] set in the Ethernet setting must be set to different station numbers.

■ Communication detail settings

(2) Ethernet connection type: OP communication

This section describes the Ethernet setting for the communication driver SIEMENS OP (Ethernet).



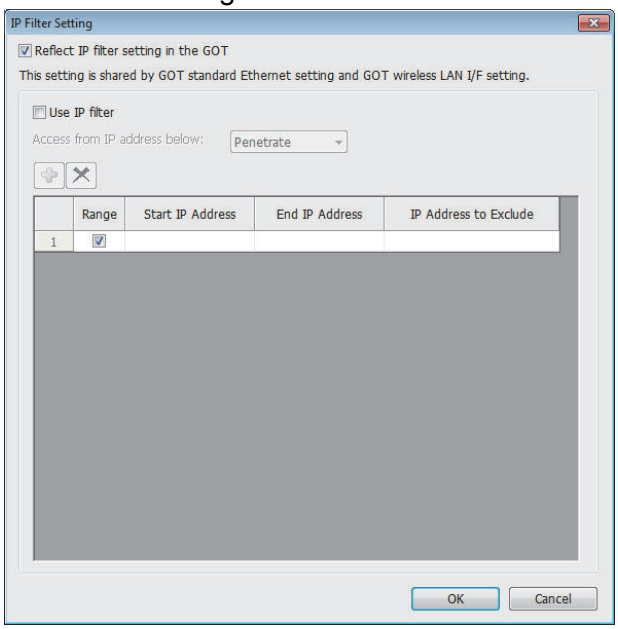

| Item | Description | Set value |
|---|---|---|
| Host | The host is displayed. (The host is indicated with an asterisk (*).) | — |
| Net No. | Set the network No. of the connected Ethernet module. (Default: blank) | 1 to 239 |
| Station*2 | Set the station No. of the connected Ethernet module. (Default: blank) | 1 to 254 |
| Type | Set the PLC type to be connected. | S7-200 OP<br>S7-300/400 OP<br>S7-1200 OP |
| IP Address | Set the IP address of the connected Ethernet module. (Default: blank) | PLC side IP address |
| Port No. | 102 (fixed) | 102 (fixed) |
| Connection No./Rack No.*1 | Set the Connection No./Rack No. set on the PLC side. (Default: 0) | 0 to 7 |
| Module Position/Slot No.*1 | Set the Module Position/Slot No. set on the PLC side. (Default)<br>S7-200 OP: 0<br>S7-300/400 OP: 2 | S7-200<br>OP: 0 to 6<br>S7-300/400<br>OP: 0 to 31 |
| Communication | TCP (fixed) | TCP (fixed) |

*1 Connection No./Rack No. and Module Position/Slot No. are unnecessary for S7-1200 OP.

*2 Each of [GOT Station] set in the communication detail setting and [Station] set in the Ethernet setting must be set to different station numbers.

■ Communication detail settings

## ■ IP Filter Setting




To improve security, the GOT 2000 series supports the IP Filter Setting.

For details on the IP Filter Setting, refer to the following manual.

GT Designer3 (GOT2000) Help

## 15.3.4 PLC side setting

**POINT**

SIEMENS PLC

For details of SIEMENS PLCs, refer to the following manuals.

☞ SIEMENS PLC user's Manual

### ■ Parameter settings

Set the following parameters with the SIEMENS software package.

(1) Ethernet connection type: FETCH/WRITE

(a) Settings of IP address and subnet mask

| Item | | Setting details |
|---|---|---|
| Parameters | IP Address | PLC side IP address |
| | Subnet mask | PLC side subnet mask |

(b) Fetch port setting

| Item | | | Setting details |
|---|---|---|---|
| Options | Mode | Select [Fetch passive]. | |
| Addresses | IP(dec) | Local | PLC side IP address |
| | | Remote | - (Default) |
| | PORT (dec) | Local | PLC side port No. |
| | | Remote | - (Default) |

(c) Write port setting

| Item | | | Setting details |
|---|---|---|---|
| Options | Mode | Select [Write passive]. | |
| Addresses | IP(dec) | Local | PLC side IP address |
| | | Remote | - (Default) |
| | PORT (dec) | Local | PLC side port No. |
| | | Remote | - (Default) |

(d) Precautions for setting

The Keep Alive function of the Siemens CP Module is not supported. Specify 0 for [Keep Alive].

(2) Ethernet connection type: OP communication

(a) S7-200

Set the following parameters.

| Item | Setting details | |
|---|---|---|
| Module Position | Value in [Position] of the Ethernet module | |
| Module Address | IP Address | PLC side IP address |
| | Subnet mask | PLC side subnet mask |
| Number of connections to configure for this module | Set "1" as the number of connected GOT. | |
| This is a Server connection: Servers respond to connection request from remote clients. | Mark the check box. | |
| Local Properties (Server) | Select [Accept all connection requests] | |
| Remote Properties (Client) | Set "10.00" in [TSAP]. | |
| Enable the Keep Alive function for this connection. | Unmark the check box. | |

(b) S7-300/400

Set the following parameters.

• When using the Ethernet module

| Item | Setting details | |
|---|---|---|
| Properties | IP Address | PLC side IP address |
| | Subnet mask | PLC side subnet mask |

• When using the built-in Ethernet port

| Item | Setting details | |
|---|---|---|
| Device name | Set [PN-IO] | |
| Properties | IP Address | PLC side IP address |
| | Subnet mask | PLC side subnet mask |

(c) S7-1200

Set the following parameters.

| Item | Setting details | |
|---|---|---|
| Ethernet addresses | IP Address | PLC side IP address |
| | Subnet mask | PLC side subnet mask |

## 15.3.5 Precautions

### ■ When connecting to multiple GOTs

(1) Setting Station
When connecting two or more GOTs in the Ethernet network, set each [Station] to the GOT.
☞ 15.3.3 ■Ethernet setting

(2) Setting IP address
Do not use the IP address "192.168.0.18" when using multiple GOTs.
A communication error may occur on the GOT with the IP address.

### ■ When setting IP address

Do not use "0" and "255" at the end of an IP address. (Numbers of *.*.*.0 and *.*.*.255 are used by the system.)
The GOT may not monitor the controller correctly with the above numbers.
Consult with the administrator of the network before setting an IP address to the GOT and controller.

### ■ When connecting to the multiple network equipment (including GOT) in a segment

By increasing the network load, the transmission speed between the GOT and PLC may be reduced.
The following actions may improve the communication performance.

- Using a switching hub
- More high speed by 100BASE-TX (100Mbps)
- Reduction of the monitoring points on GOT

### ■ When monitoring a nonexistent or turned-off station

If a time-out occurs with the initial communication by monitoring a nonexistent or turned-off station, the time-out can delay the communication with the normally operating station.

### ■ Timing to start GOT communication

After the PLC starts up, start the GOT communication. When the GOT starts communication before the PLC starts up, a communication timeout occurs.

### ■ Operations during communication

During normal communication, any operation which makes the GOT restart (including writing a project and changing utility data)may display the system alarm, "402 Communication timeout. Confirm communication pathway or modules.", when the GOT restarts.

# 15.4 Device Range that Can Be Set

The device ranges of controller that can be used for GOT are as follows.

Note that the device ranges in the following tables are the maximum values that can be set in GT Designer3.

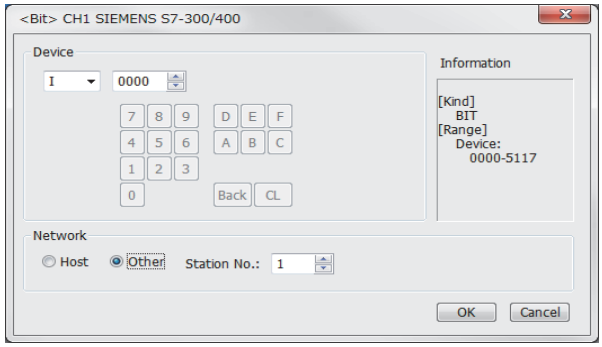
The device specifications of controllers may differ depending on the models, even though belonging to the same series.

Please make the setting according to the specifications of the controller actually used.

When a non-existent device or a device number outside the range is set, other objects with correct device settings may not be monitored.

## ■ Setting item

(a) S7-300/400 series and S7(Ethernet)

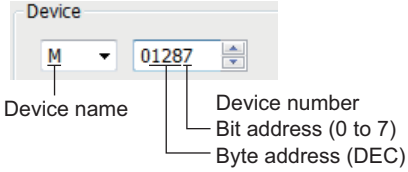



| Item | Description | |
|---|---|---|
| Device | Set the device name, device number, and bit number. The bit number can be set only when specifying the bit of word device. | |
| Information | Displays the device type and setting range which are selected in [Device]. | |
| Network | Set the monitor target of the set device. | |
| | Host | Select this item to monitor the controller specified as the host station in the GOT utility (setup). |
| | Other | Select this item to monitor a controller other than the one specified as the host station.<br>• SIEMENS S7-300/400<br>Set the MPI address of the controller monitored.<br>• SIEMENS S7(Ethernet)<br>Set the network number and the station number of the controller monitored. |

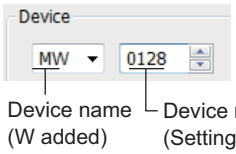
**POINT**

Device settings of SIEMENS PLC (S7-300/400 series, S7(Ethernet))

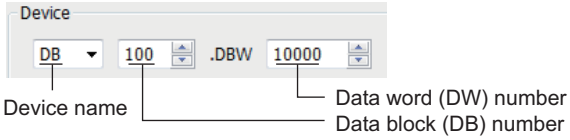
(1) When setting a bit device as a bit device
Set the device using the format of byte address (DEC) + bit address (0 to 7).




(2) When setting a bit device as a word device
Set the device number.
For the device name setting, enter "W" after the bit memory device name.




(3) When setting a data register
Set the device using the format of data block (DB) + data word (DW).




(4) Precautions when setting devices

(a) Notation method of the bit device
The difference in bit memory notation between GOT and PLC is as follows.

| Notation of GOT | Notation of PLC |
|---|---|
| Q0007 | Q0.7 |

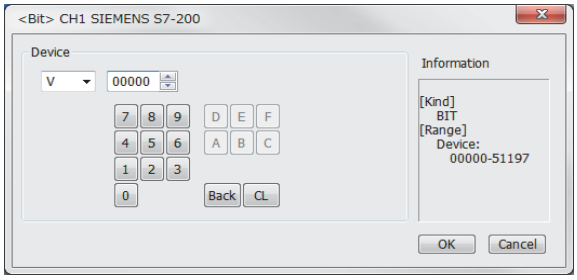
(b) Preparing to set a data register
It is necessary to define the data block using a peripheral software and sequence program, before using a data register.
Setting more than one data block cannot be done for the data register.

(c) Object that cannot be set Timer (current value) (T)
Only one device can be set for the write target of this device.
Therefore, multiple devices, such as, using the recipe function, etc., cannot be used.

(d) Notation method of the data registers with the bit specification
The notation of the data registers with the bit specification differs between the GOT and the PLC.
The following shows the correspondence table.

| Notation in GOT | Notation in PLC |
|---|---|
| DB1.DBW0.b0 | DB1.DBX1.0 |
| DB1.DBW0.b1 | DB1.DBX1.1 |
| : | : |
| DB1.DBW0.b7 | DB1.DBX1.7 |
| DB1.DBW0.b8 | DB1.DBX0.0 |
| : | : |
| DB1.DBW0.b15 | DB1.DBX0.7 |
| DB1.DBW2.b0 | DB1.DBX3.0 |
| : | : |
| DB1.DBW2.b7 | DB1.DBX3.7 |
| DB1.DBW2.b8 | DB1.DBX2.0 |
| : | : |
| DB1.DBW2.b15 | DB1.DBX2.7 |
| : | : |

(b) S7-200 Series

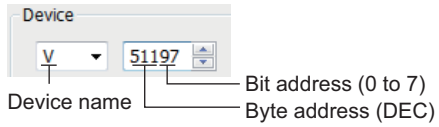



| Item | Description |
|---|---|
| Device | Set the device name, device number, and bit number. The bit number can be set only when specifying the bit of word device. |
| Description | Displays the device type and setting range which are selected in [Device]. |

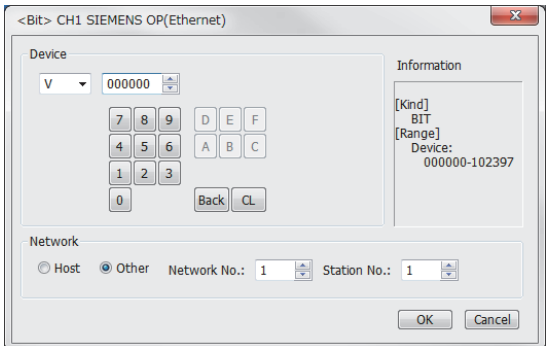
**POINT**

Device settings of SIEMENS PLC (S7-200 series)

(1) When setting bit devices (except Timer and Counter)
Set the device using the byte address (DEC) and the bit address (0 to 7).




(c) SIEMENS OP (Ethernet)

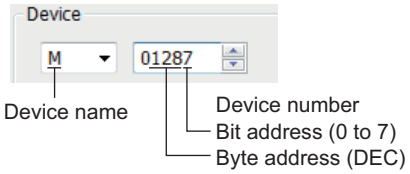



| Item | | Description |
|---|---|---|
| Device | | Set the device name, device number, and bit number. The bit number can be set only when specifying the bit of word device. |
| Information | | Displays the device type and setting range which are selected in [Device]. |
| Network | | Set the monitor target of the set device. |
| | Host | Select this item to monitor the controller specified as the host station in the GOT utility (setup). |
| | Other | Select this item to monitor a controller other than the one specified as the host station. |

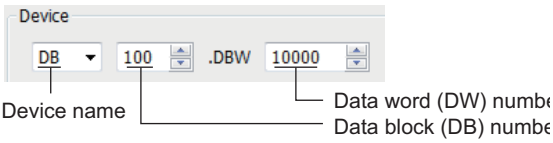
**POINT**

Device settings of SIEMENS PLC (S7-200/300/400/1200 series, SIEMENS OP (Ethernet))

(1) When setting a bit device as a bit device
Set the device using the format of byte address (DEC) + bit address (0 to 7).




(2) When setting a data register
Set the device using the format of data block (DB) + data word (DW).




(3) Precautions when setting devices

(a) Preparing to set a data register
It is necessary to define the data block using a peripheral software and sequence program, before using a data register. Setting more than one data block cannot be done for the data register.

(b) Object that cannot be set Timer (current value) (T)
Only one device can be set for the write target of this device. Therefore, multiple devices, such as, using the recipe function, etc., cannot be used.

(c) Notation method of the data registers with the bit specification
The notation of the data registers with the bit specification differs between the GOT and the PLC. The following shows the correspondence table.

| Notation in GOT | Notation in PLC |
|---|---|
| DB1.DBW0.b0 | DB1.DBX1.0 |
| DB1.DBW0.b1 | DB1.DBX1.1 |
| : | : |
| DB1.DBW0.b7 | DB1.DBX1.7 |
| DB1.DBW0.b8 | DB1.DBX0.0 |
| : | : |
| DB1.DBW0.b15 | DB1.DBX0.7 |
| DB1.DBW2.b0 | DB1.DBX3.0 |
| : | : |
| DB1.DBW2.b7 | DB1.DBX3.7 |
| DB1.DBW2.b8 | DB1.DBX2.0 |
| : | : |
| DB1.DBW2.b15 | DB1.DBX2.7 |
| : | : |

## 15.4.1 SIEMENS S7-300/400 Series

| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | Input relay (I) | I0000 to I5117 | Decimal + Octal |
| | Output relay (Q) | Q0000 to Q5117 | |
| | Bit memory (M) | M00000 to M20477 | |
| | The bit specification of the word device (except Input relay, Output relay, Bit memory, Timer, Counter) | Setting range of each word device | — |
| Word device | Input relay (IW) | IW0 to IW510 | Decimal |
| | Output relay (QW) | QW0 to QW510 | |
| | Bit memory (MW) | MW0 to MW2046 | |
| | Timer (Current value) (T)*1 | T0 to T511 | |
| | Counter (Current value) (C) | C0 to C511 | |
| | Data register (DB) | DB1.DBW0 to DB1.DBW65534 | |
| | | DB2.DBW0 to DB2.DBW65534 | |
| | | . . | |
| | | DB4094.DBW0 to DB4094.DBW65534 | |
| | | DB4095.DBW0 to DB4095.DBW65534 | |

*1 Monitoring or writing is not possible in the continuous device designation mode.

## 15.4.2 SIEMENS S7-200 Series

| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | variable memory (V) | V0 to V51197 | Decimal + Octal |
| | Input relay (I) | I0 to I77 | |
| | Output relay (Q)*3 | Q0 to Q77 | |
| | Bit memory (M) | M0 to M317 | |
| | special memory (SM) | SM0 to SM1947 | |
| | Timer (T)*1 | T0 to T255 | Decimal |
| | Counter (C)*1 | C0 to C255 | |
| | sequence control relay (S) | S0 to S317 | Decimal + Octal |
| Word device | variable memory (VW) | VW0 to VW5118 | Decimal |
| | Input relay (IW) | IW0 to IW6 | |
| | Output relay (QW)*3 | QW0 to QW6 | |
| | analog input (AIW)*1 | AIW0 to AIW30 | |
| | analog output (AQW)*3 | AQW0 to AQW30 | |
| | Bit memory (MW) | MW0 to MW30 | |
| | special memory (SMW) | SMW0 to SMW192 | |
| | Timer (T)*4 | T0 to T255 | |
| | Counter (C)*4 | C0 to C255 | |
| | sequence control relay (SW) | SW0 to SW30 | |
| | Double word device | High-speed counter (HC)*2 | HC0 to HC2 |

*1 Only reading is possible.
*2 Only reading 32-bit (two-word data) designation is allowed.
*3 Writing is possible only while the PLC is running.
*4 Only 16-bit (1-word) designation is allowed.

## 15.4.3 SIEMENS S7 (Ethernet)

| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | Input relay (I) | I0000 to I1277 | Decimal + Octal |
| | Output relay (Q) | Q0000 to Q1277 | |
| | Bit memory (M) | M0000 to M2557 | |
| | The bit specification of the word device (except Input relay, Output relay, Bit memory, Timer, Counter) | Setting range of each word device | — |
| Word device | Input relay (IW) | IW0 to IW126 | Decimal |
| | Output relay (QW) | QW0 to QW126 | |
| | Bit memory (MW) | MW0 to MW254 | |
| | Timer (Current value) (T)*1 | T0 to T255 | |
| | Counter (Current value) (C) | C0 to C255 | |
| | Data register (DB) | DB1.DBW0 to DB1.DBW2046 | |
| | | DB2.DBW0 to DB2.DBW2046 | |
| | | . . | |
| | | DB254.DBW0 to DB254.DBW2046 | |
| | | DB255.DBW0 to DB255.DBW2046 | |

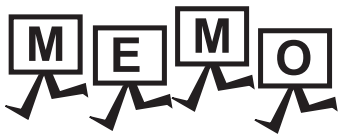
*1 Monitoring or writing is not possible in the continuous device designation mode.

## 15.4.4 SIEMENS OP (Ethernet)

| | Device name | Setting range | Device No. representation |
|---|---|---|---|
| Bit device | variable memory (V) | V0 to V102397 | Decimal + Octal |
| | Input relay (I) | I0 to I655357 | |
| | Output relay (Q)*3 | Q0 to Q655357 | |
| | Bit memory (M) | M0 to M655357 | |
| | The bit specification of the word device (except variable memory, Input relay, Output relay, Bit memory, Timer, Counter) | Setting range of each word device | Decimal |
| Word device | variable memory (VW) | VW0 to VW10238 | Decimal |
| | Input relay (IW) | IW0 to IW65534 | |
| | Output relay (QW)*3 | QW0 to QW65534 | |
| | Bit memory (MW) | MW0 to MW65534 | |
| | Timer (T)*1*2*4 | T0 to T65535 | |
| | Counter (C)**1*2*4 | C0 to C65535 | |
| | Data register (DB) | DB1.DBW0 to DB1.DBW65534 | |
| | | DB2.DBW0 to DB2.DBW65534 | |
| | | : | |
| | | DB4094.DBW0 to DB4094.DBW65534 | |
| | | DB4095.DBW0 to DB4095.DBW65534 | |

*1 Data format to input into Timer (T), Counter (C) varies according to a type of the PLC.
- S7-300/400: BCD code
- S7-200: BIN code

*2 S-1200 does not support Timer (T), Counter (C).
*3 Writing is possible only while the PLC is running.
*4 Only 16-bit (1-word) designation is allowed.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## REVISIONS

* The manual number is given on the bottom left of the back cover.

| Print Date | * Manual Number | Revision |
|---|---|---|
| Sep., 2013 | SH(NA)-081199ENG-A | Compatible with GT Works3 Version1.100E |
| Nov., 2013 | SH(NA)-081199ENG-B | Compatible with GT Works3 Version1.104J<br>• Changing the icons of the supported models |
| Jan., 2014 | SH(NA)-081199ENG-C | Compatible with GT Works3 Version1.108N<br>• Writing errors have been corrected. |
| Apr., 2014 | SH(NA)-081199ENG-D | Compatible with GT Works3 Version1.112S<br>• GT25 and GS are added.<br>• The ALLEN-BRADLEY PLC MicroLogix1400 is supported. |
| Jul., 2014 | SH(NA)-081199ENG-E | Compatible with GT Works3 Version1.118Y<br>• SICK safety controller connection of GS is supported.<br>• SICK safety controller FX3-CPU320002 is supported.<br>• ALLEN-BRADLEY PLC Ethernet connection type: EtherNet/IP (AB Tag) is supported.<br>• SIEMENS PLC SIMATIC S7-300/400 series connection of GS is supported. |
| Oct., 2014 | SH(NA)-081199ENG-F | Compatible with GT Works3 Version1.122C<br>• GT21 is added.<br>• PLCs manufactured by MITSUBISHI INDIA are supported.<br>• The multi CPU of PLCs manufactured by Yokogawa Electric Corporation is supported.<br>• The IP filter setting is supported. |
| Jan., 2015 | SH(NA)-081199ENG-G | Compatible with GT Works3 Version1.126G<br>• YASKAWA PLC connection of GT21 is supported. |
| Apr., 2015 | SH(NA)-081199ENG-H | Compatible with GT Works3 Version1.130L<br>• FUJI PLC (MICREX-SX SPH) is supported.<br>• LS INDUSTRIAL SYSTEMS PLC connection of GT21 is supported.<br>• ALLEN-BRADLEY PLC connection (Serial only) of GT21 is supported.<br>• ALLEN-BRADLEY PLC connection multi-CPU (EtherNet/IP(AB Tag)) is supported.<br>• GT27 is added (GT2705-VTBD).<br>• GT21 is added (GT2104-RTBD, GT2103-PMBDS2, GT2103-PMBLS). |
| | | |

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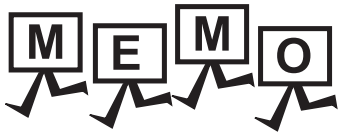
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# WARRANTY

Please confirm the following product warranty details before using this product.

## 1. Gratis Warranty Term and Gratis Warranty Range

If any faults or defects (hereinafter "Failure") found to be the responsibility of Mitsubishi occurs during use of the product within the gratis warranty term, the product shall be repaired at no cost via the sales representative or Mitsubishi Service Company.
However, if repairs are required onsite at domestic or overseas location, expenses to send an engineer will be solely at the customer's discretion. Mitsubishi shall not be held responsible for any re-commissioning, maintenance, or testing on-site that involves replacement of the failed module.

### [Gratis Warranty Term]

The gratis warranty term of the product shall be for thirty-six (36) months after the date of purchase or delivery to a designated place.
Note that after manufacture and shipment from Mitsubishi, the maximum distribution period shall be six (6) months, and the longest gratis warranty term after manufacturing shall be forty-two (42) months. The gratis warranty term of repair parts shall not exceed the gratis warranty term before repairs.

### [Gratis Warranty Range]

(1) The customer shall be responsible for the primary failure diagnosis unless otherwise specified.
If requested by the customer, Mitsubishi Electric Corporation or its representative firm may carry out the primary failure diagnosis at the customer's expence.
The primary failure diagnosis will, however, be free of charge should the cause of failure be attributable to Mitsubishi Electric Corporation.
(2) The range shall be limited to normal use within the usage state, usage methods and usage environment, etc., which follow the conditions and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.
(3) Even within the gratis warranty term, repairs shall be charged for in the following cases.
1. Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
2. Failure caused by unapproved modifications, etc., to the product by the user.
3. When the Mitsubishi product is assembled into a user's device, Failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
4. Failure that could have been avoided if consumable parts designated in the instruction manual had been correctly serviced or replaced.
5. Replacing consumable parts such as the battery, backlight and fuses.
6. Failure caused by external irresistible forces such as fires or abnormal voltages, and Failure caused by force majeure such as earthquakes, lightning, wind and water damage.
7. Failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
8. Any other failure found not to be the responsibility of Mitsubishi or that admitted not to be so by the user.

## 2. Onerous repair term after discontinuation of production

(1) Mitsubishi shall accept onerous product repairs for seven (7) years after production of the product is discontinued.
Discontinuation of production shall be notified with Mitsubishi Technical Bulletins, etc.
(2) Product supply (including repair parts) is not available after production is discontinued.

## 3. Overseas service

Overseas, repairs shall be accepted by Mitsubishi's local overseas FA Center. Note that the repair conditions at each FA Center may differ.

## 4. Exclusion of loss in opportunity and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation to damages caused by any cause found not to be the responsibility of Mitsubishi, loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products, special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products, replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

## 5. Changes in product specifications

The specifications given in the catalogs, manuals or technical documents are subject to change without prior notice.

## 6. Product application

(1) In using the Mitsubishi graphic operation terminal, the usage conditions shall be that the application will not lead to a major accident even if any problem or fault should occur in the graphic operation terminal device, and that backup and fail-safe functions are systematically provided outside of the device for any problem or fault.
(2) The Mitsubishi graphic operation terminal has been designed and manufactured for applications in general industries, etc.
Thus, applications in which the public could be affected such as in nuclear power plants and other power plants operated by respective power companies, and applications in which a special quality assurance system is required, such as for Railway companies or Public service purposes shall be excluded from the graphic operation terminal applications.
In addition, applications in which human life or property that could be greatly affected, such as in aircraft, medical applications, incineration and fuel devices, manned transportation equipment for recreation and amusement, and safety devices, shall also be excluded from the graphic operation terminal range of applications.
However, in certain cases, some applications may be possible, providing the user consults the local Mitsubishi representative outlining the special requirements of the project, and providing that all parties concerned agree to the special circumstances, solely at our discretion.
In some of three cases, however, Mitsubishi Electric Corporation may consider the possibility of an application, provided that the customer notifies Mitsubishi Electric Corporation of the intention, the application is clearly defined and any special quality is not required.

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**SH(NA)-081199ENG-H**

# GOT2000 Series Connection Manual (Non-Mitsubishi Products 2)

For GT Works3 Version1

| | |
|---|---|
| MODEL | GOT2000-CON3-SW1-E |
| MODEL CODE | ———— |
| SH(NA)-081199ENG-H(1504)MEE | |

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